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# The American City

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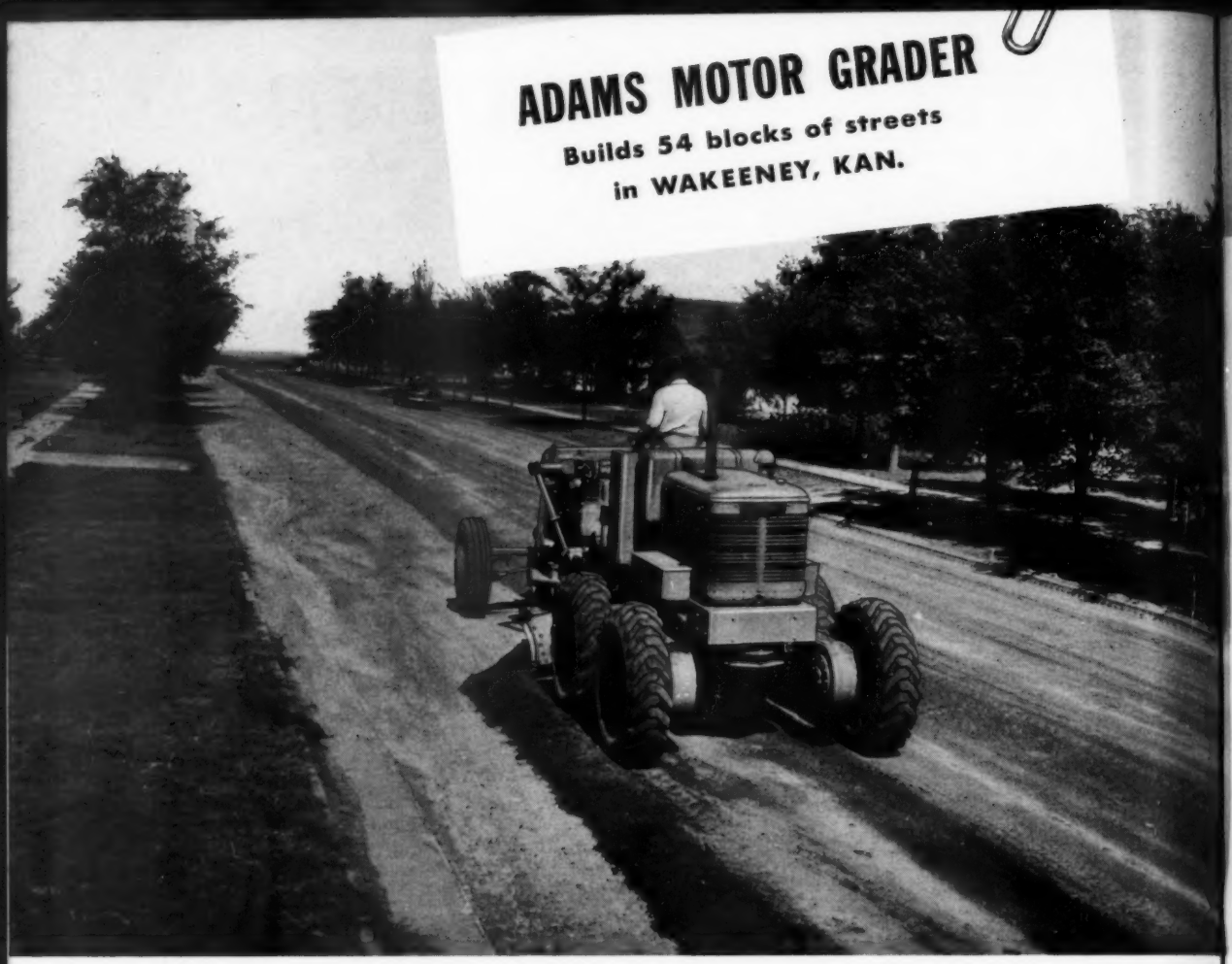
***See pp. 21, 23, 26, 28, 139, 141, for catalogs and publications on municipal and civic subjects***

**List of coming conventions, page 137. Index to Advertisements, page 178.**




# Streets Table-Top Smooth

## WHEN ADAMS DOES THE GRADING

● Out in Wakeeney, Kansas, they can tell you exactly how good Adams Motor Graders are for building city streets. They know, because just one Adams Motor Grader handled all of the grading, oil-mixing and finishing on 54 blocks of new streets in that city.

This project, which involved an expenditure of some $165,000, demanded a lot of the motor grader on the job . . . it demanded the abundant power of Adams dependable International Diesel engine—the precision accuracy of Adams power-operated control system—the strength and stamina of Adams rugged all-welded, machine-finished construction.

Everywhere, progressive cities have found Adams Motor Graders ideal for many municipal duties—for building and maintaining unpaved streets and alleys—backfilling over sewers, water mains, gas pipes, etc.—grading around playgrounds, parks, municipal centers, parking areas, etc.—leveling municipal dumps, etc.

Discover how Adams Motor Graders can help improve and beautify your city—*at low cost.* Your near-by Adams dealer will gladly give you complete information on the machine best suited to your needs.

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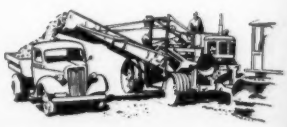
**Adams**



MOTOR GRADERS • LEANING WHEEL GRADERS • ELEVATING GRADERS

# OUR MUNICIPAL NOTEBOOK

### *Surplus Property Disposal Bettered*

A recent order issued by General Robert M. Littlejohn, Administrator of the War Assets Administration, providing for donation of machine tools from federal surplus to state and local governmental and educational agencies, has been hailed by Albert Pleydell, President of the National Institute of Governmental Purchasing, as a first step in recognizing the needs of governmental agencies.

A statement issued by Mr. Pleydell on May 8 congratulated General Littlejohn "for a vital change in policy that will benefit all levels of government throughout the United States."

Mr. Pleydell declared in the statement:

For three years, schools and other governmental agencies have suffered under a disposal program that failed to acknowledge their needs and their priority claims. Our Institute has consistently opposed this policy. In March, General Littlejohn held a conference at which NIGP presented the facts to him. His order on machine tools followed a study of these facts. . . . General Littlejohn has demonstrated by action that he understands and is sympathetic with the needs of state and local government. Extension of the machine tool donation policy to all surplus items in long supply would prove a valuable contribution to the economic advancement of the United States.

### *Federal-Aid Program for Local Planning to Expire Unless Congress Acts*

An item which deserves serious consideration before congressional adjournment is legislation to continue the advance planning program conducted by the Bureau of Community Facilities. Without action by Congress this program will die with the expiration of the War Mobilization and Reconversion Act on June 30. A bill (H.R. 3490) designed to continue it was introduced on May 15, 1947, by Congressman Frederick A. Muhlenberg of Pennsylvania, a member of the Public Works Committee.

As of April of this year, federal advances had been made for the preparation of detailed plans and specifications for more than 6,800 public works projects to be undertaken by state and local governments. The advances will be repaid when the projects so planned are actually placed under construction. In April there were state and local applications under review in Washington for advances amounting to more than $32,000,000, although only about $6,000,000 remained available of the total funds ($65,000,000) appropriated by Congress. The money already advanced to local, state, and municipal governments will plan work, the estimated total cost of which amounts to $2,177,000,000.

The program has been especially helpful in smaller communities that do not have architects and engineers on their regular staffs to prepare detailed drawings and specifications. It has acted as a stimulus to local community planning and scheduling of public works to fit in with economic and social needs.

There may be some question as to the adequacy of the program in having produced a volume of fully planned public works great enough to meet an economic emergency, but there can be little doubt that local officials should back it to the full and urge its continuance and possible expansion.

### *Housing Bill Also Needs Local Support*

WITHOUT immediate increased and vigorous local support, it seems possible that Congress may adjourn without having passed the Taft-Ellender-Wagner general housing bill, although housing has been termed the Number One post-war problem of the country's economy.

Congress failed to act last session on a substantially similar bill. (It was passed by the Senate, but never reported out of the House Banking and Currency Committee). The abandonment of price and material controls and the scuttling of the veterans' emergency housing program have brought little progress in the alleviation of the housing shortage during the course of the past year. It seems evident that federal assistance and a national housing policy are needed if slums and blighted areas are to be cleared and adequate housing provided for those now living in unsafe, unsanitary, and overcrowded accommodations.

The T.-E.-W. bill has been favorably reported out of the Senate Banking and Currency Committee, but as yet no action on it has been taken by the House Banking and Currency Committee. A booklet issued by the United States Conference of Mayors, *America Can Not Afford Slums*, stresses the interests of municipalities in the bill, stating that slums are an increasing financial burden and a growing social problem for our cities and for the nation. Excellently presented, the booklet declares that 6,000,000 slum dwellings need to be cleared, and that private enterprise, unaided, can not do the job. It is also pointed out that:

Decent low-rent housing is a municipal asset and an assurance of the health and well-being of our citizens. The cities are eager to assume their share of responsibility for clearing slums and providing decent houses for families of low income —especially the families of veterans. . .

The need for action is clear. A start can be made! By its action on the Taft-Ellender-Wagner Bill, Congress will decide whether slums blot out our cities or we check their spread and start to rebuild. . .

We must show the world that democracy can meet this challenge.

### *A Finer Washington as A National War Memorial*

ELSEWHERE in this issue (page 73) is an article devoted to some of the post-war problems confronting our National Capital. The abnormal growth of Washington, D. C., will necessitate comprehensive planning and expensive treatment if the city is to remain worthy of the ideals of a great democracy.

In fact, the lead editorial in the March issue of *The Journal of The American Institute of Architects* suggests that there could be no more suitable National War Memorial than the rebuilding of the capital city to the extent that its facilities and surroundings in every respect will be as good as, if not better than, those afforded by any other city in the country.

The editorial declares:

. . . Having demonstrated abroad our capacity and power in the science and organization of war, may we not register one really great accomplishment at home, to set a beacon for our people and to demonstrate our fitness to lead in the arts and social sciences of peace? . . . . There is no one undertaking which would be as effective, both at home and abroad, as the setting in order of our seat of government.

If the various protagonists of this or that project would be broadminded enough to recognize the need or desirability of each other's proposals, and broad-gauge

# Seven towers on seven hilltops

*Airplane photograph of one of seven relay stations — to test use of radio "microwaves" for Long Distance services*

Built by the Bell System, they will provide a new kind of Long Distance communication.

Each hilltop tower is a relay station between New York and Boston* for very short radio waves.

These "microwaves" are free from static and most man-made interference. But they shoot off into space instead of following the earth's curve. So they have to be gathered into a beam and aimed at the next tower, about 30 miles away.

That's the job of the four big, square, metal lenses on each tower. They focus microwaves very much as a magnifying glass focuses the sun's rays.

These radio relay systems may be used for Long Distance telephone calls and to transmit pictures, radio broadcasts and television programs.

This is another example of the Bell System's effort to provide more and better Long Distance service.

**BELL TELEPHONE SYSTEM**

**We have applied to the Federal Communications Commission for authority to start a similar link later between New York and Chicago.*

enough to combine forces, they could lay the groundwork for a "beloved city," a capital to be proudly exhibited to our guests of the United Nations as an expression not only of American ideals but of American capacity to transform ideals into realities. . .

For the cost of a battleship or so, of limited usefulness, we could create a seat of government well ordered and beautiful in its development, setting standards for every community of our country, and reflecting to our credit in the community of nations. We should have an *inspirational, living* National Memorial commensurate with our achievements in war and peace.

The Capital's Centennial of 1900 revived public interest in a forgotten plan and rescued the city from mediocrity. It is to be hoped that the Washington Sesqui-Centennial of 1950 will see the city developing as a physical representation of the true spirit of democracy.

## *Controlling Highway Access and Roadside Development*

THE Public Roads Administration has recently issued a revised edition of *Public Control of Highway Access and Roadside Development*, originally published in 1943.* The revised document contains a wealth of current information on many legal and administrative phases of express highways and the public control of areas adjacent to public roads.

The study was made by David R. Levin, Head, Special Administrative Studies Unit, Division of Financial and Administrative Research, Public Roads Administration. It contains a comprehensive analysis of all controlled-access highway legislation, as found in the statutes of twenty-four states and in the constitution of an additional jurisdiction.† Reference also is made to a recent Minnesota Supreme Court decision which upheld the decision of the Department of Highways that its basic highway law is comprehensive enough to permit the construction of expressways without the benefit of special legislation.

The investigation reveals that there is a minimum of 1,244 miles of controlled-access highways in the United States. Approximately 2,185 miles of such expressways in twenty-seven states and the District of Columbia are being planned with federal funds for early construction. It is interesting to note that all advance engineering projects planned with federal funds, scheduled in California, Illinois, Louisiana, Maryland, Michigan, New Jersey, New York, Pennsylvania, and Rhode Island, are of controlled-access design.

Efforts to establish a limited state system of express highways in a number of states are commented upon in the study. The right of view and the billboard problem are discussed at some length, and possible methods of control are suggested. The subject of highway development rights, a device intended to preserve the highway as an efficient traffic facility and to provide needed lands for the future expansion of the right-of-way, is developed thoroughly. Its successful application in Ohio is described.

In addition, discussions of marginal land acquisition, land-use controls, and the restriction of ribbon development are noteworthy. Two model bills are mentioned, one for a controlled-access highway law and another for a highway-development rights statute.

* See page 141 of this issue.

† California, Colorado, Connecticut, Florida, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, Rhode Island, Texas, Utah, Virginia, and West Virginia. The 1945 Missouri Constitution contains a provision authorizing the control of access.

## *Local Groups Urge Active Planning Promotion*

MUCH attention was aroused at the American Society of Planning Officials' May Conference by the programs and ideas of various representatives of newly formed local groups throughout the country interested in the vigorous promotion of planning. These local groups outlined the need for stimulating citizen interest in the purposes and objectives of planning and for wider participation by professional groups in the planning process. They voiced some criticism of the four existing national planning organizations (American Planning and Civic Association, American Institute of Planners, National Planning Association, and ASPO), and asked why at least these four organizations should not unite in a policy of publicizing planning. It was the opinion of these local groups that a new approach is urgently needed if planning is to make any significant headway.

The groups are known by various names such as Telesis, San Francisco; Association for Planning Research and Action, Chicago; Metropolitan Committee for Planning, New York City; Council for Planning Action, Cambridge, Mass.; Association for Community Planning Research and Education, Texas; and the Yale Planning Group, New Haven, Conn. Persons from the University of North Carolina, Detroit, Denver, Milwaukee, and Washington, D. C., have also expressed interest in the possibility of forming similar groups in their respective areas or regions.

### Characteristics and Objectives

The following characteristics were felt to differentiate such groups from the other planning organizations:

1. They are interested in local (metropolitan or regional) planning problems.

2. They are composed not only of professional planners, but also of persons from related and synthesizing professions.

3. They have the following purposes in common:

(a) Vigorous encouragement of planning action

(b) The promotion and/or coordination of planning research

(c) The furnishing of service and advice to local organizations interested in planning

(d) The desire to express group opinion on national measures directly related to environmental planning

(e) Self-education of members

(f) Interest in cooperating with and exchanging ideas with similar groups throughout the country

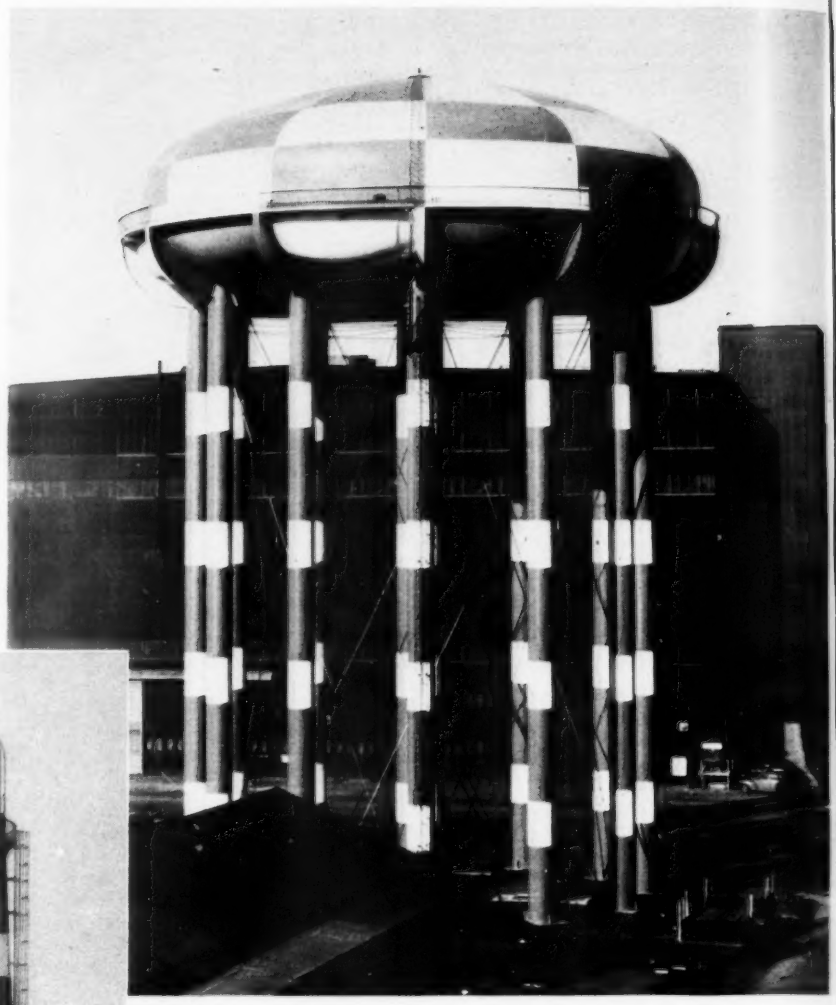
The past year for most of the groups now in existence has been mainly one of defining objectives and getting established, although some have already taken an active part in promoting local community interest in planning.

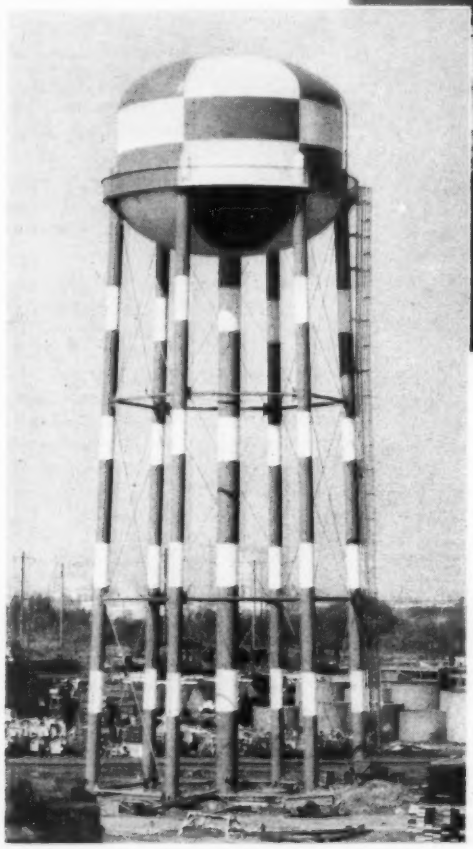
A loose federation of these local groups is now in existence, although present efforts will be confined to working with and through existing organizations. A "statement of principles" for planners, prepared by a committee of group representatives at Cincinnati, is being circulated for comments and discussion. A "National Planning Week," and how one can be organized for next year, is another matter upon which many of the groups will recommend consideration and action.

The future of this new "movement" can hardly be predicted. It seems certain, however, that those interested in the community planning idea and improving the environment of our cities stand to gain a great deal in the way of support and backing if the local group programs flourish and expand.

# TWO NEW HORTON ELEVATED TANKS for PHILADELPHIA NAVY YARD

*The 1,250,000-gal. tank at the right and the 250,000-gal. tank shown below were recently erected at the Philadelphia Navy Yard to provide gravity pressure in the system supplying potable water for domestic service.*





THE water supply for the Philadelphia Navy Yard is obtained from seven deep wells located at the naval base. Water from four of the wells is pumped into a ground-level reservoir, aerated and re-pumped into the distribution system. Two of the wells pump into the distribution through an aerator and iron-removal filters. The seventh well pumps directly into the system. A separate water supply provides fire protection throughout the yard. The sprinkler system in certain buildings, however, is connected to the potable water supply.

The large tank, a Horton radial-cone structure, has a relatively shallow depth of 25 ft. which reduces variations in head to a minimum, and more nearly parallels the head in the smaller tank.

Horton elevated tanks are installed in water distribution systems to improve service, to minimize pressure variations or to reduce pumping costs. Write our nearest office for estimating figures.

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New York 6.....3300—165 Broadway Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Los Angeles 14.....1403 Wm. Fox Bldg.
Chicago 4.....2127 McCormick Bldg.
San Francisco 11....1233-22 Battery Street Bldg.
Philadelphia 3...1616-1700 Walnut Street Bldg
Atlanta 3.....2114 Healey Bldg.
Havana.....402 Abreu Bldg.
Detroit 26.....1501 Lafayette Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

## Attleboro, Mass., To Develop Ground Water Supplies

IN order to meet requirements for increased use of water, Attleboro, Mass., plans to enlarge and strengthen its water supply through the use of evaporation-proof, algae-proof, free underground storage. A report recently delivered to the city by the consulting firm of Thomas Worcester Inc., Boston, Mass., tells how this will be done.

Six wells with a total radial yield of 4.3 mgd will be built around one source of supply in an extensive natural gravel deposit. This deposit will be used as an underground storage to augment the present surface-storage capacity and provide some reserve capacity. The water thus obtained will require no treatment other than aeration and the addition of lime to neutralize its acid condition. Chlorination is provided to safeguard the entire supply.

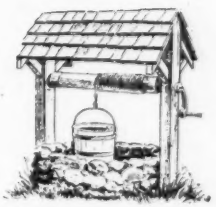
To reinforce the ground storage, a diversion dam will be built in a small river nearby. Ultimately, it will provide a gravity supply for a proposed future surface reservoir and filter plant. However, its present use will be for recharging the ground-water supply by providing a gravity flow of surplus water which will be admitted through surface basins or filters into the gravel deposit, thus increasing the natural ground-water storage capacity.

To do the actual recharging, two basins will be employed in the immediate future, with two more to be added at later dates. Geological studies indicate that this is superior to the "inverted-well" type of recharging in this location, particularly in view of the possibility of silting of the "well." The use of ground-water storage rather than surface storage shows a potential saving of approximately one-third.

## "Meet Me at the Well"

THAT'S the slogan that could identify the 1947 water and sewage works twin conventions, what with the American Water Works Association's Ol' Oaken Bucket occupying a strategic spot in the exposition auditorium, shielded by a well cover provided by the Water and Sewage Works Manufacturers Association, Inc.

The A.W.W.A. and the Federation of Sewage Works Associations concurrent conventions are to be held in San Francisco, Calif., from July 21st to the 25th.



*"Meet me at the Well"*

## Honolulu's Artesian Wells

A PROGRAM of ground-water recharge will mean the difference between a dangerously low water supply and a supply adequate enough to care for the fast-growing population in Honolulu. This was reported by Frederick Ohrt, manager and chief engineer in the 11th Annual Report of the Board of Water Supply.

Drought conditions prevailed from 1940 to 1946 which endangered the artesian water reserves and resulted in new low-water table levels in several of the artesian areas. Laboratory analyses showed evidence of salt encroachment into the fresh-water lens. Furthermore, the population which had increased from 179,000 in 1940 to 270,000 by the end of 1944 did not decrease following the end of the war, as was anticipated. The per capita use of water is roughly 140 gallons per day.

To provide sufficient developed capacity for future needs, a program is being formulated along the following lines:

*Recharging tunnels.* This plan comprises the conveying of a stream of water, by means of small diversion dams, into horizontal tunnels driven into the Koolau lava permitting water to percolate down into the artesian aquifer. Two such projects will be undertaken as soon as possible.

*Pumping.* A 10-mgd centrifugal pump is being installed at one pumping station to supplement the existing two 5-mgd units there. Additional underground pumping stations are being contemplated to supplant artesian well stations.

*Supply mains.* The completion of the 42-inch cross-town water main now under construction will make it possible to supply the low-service district.

*Forest reserves.* Privately owned land within the forest reserve must be purchased by the city for the protection of the water supply. The board has taken initial steps by acquiring, as finances permitted, portions of this land.

## *Not All Costs Are Up*

VIEWED from a short-range standpoint, water works costs are high, but looking at them for over a period of twenty-five years, one finds that many costs in the water works field are low. Thomas Skinker, Water Commissioner for the city of St. Louis, has data that show this clearly.

In the past quarter of a century, costs of key materials used in St. Louis water works operation have varied as shown below:

| | 1921 | 1947 |
|---|---|---|
| Coal | $3.88 | $3.95 |
| Lime | 12.85 | 9.40 |
| Alum | 30.04 | 26.80 |
| Chlorine | 161.00 | 68.00 |

The coal purchased in 1921 was unwashed and contained a substantial amount of sulphur and other impurities. The coal purchased in St. Louis today is washed and of much better quality; consequently, the seven cent price raise is not a fair index in itself.

The prices quoted are for material delivered to St. Louis, and in view of the substantial increase in freight rates within the current year coupled with the higher salaries being paid, chemical and material companies are producing less expensively than they did in 1921, Commissioner Skinker pointed out.

"I feel," he states, "that the producers of these materials deserve great credit for being able to maintain lower prices in the face of increased freight rates, salaries, and wages."

## *Is Ammonia Combustible?*

NOT according to W. F. Schaphorst, mechanical engineer, Newark, N. J., who at one time conducted thorough investigations on the subject. At least, not sufficiently combustible to be a factor in any safety measures, despite the fact that occasionally one finds reference to the "danger of an ammonia explosion."

Quoting from the *Refrigeration Data Book* (1937-38 edition), he points out that the limits of explosion of ammonia and air correspond to 16.5% and 26.8%. With dry gases the limits are extended a little while the temperature also rises. With damp gases at 40° to 50° C., there is no possibility of explosion.

Ammonia is combustible in oxygen, says Mr. Schaphorst, just as iron is, but in ordinary air, it is 99.99% safe.

EAGLE

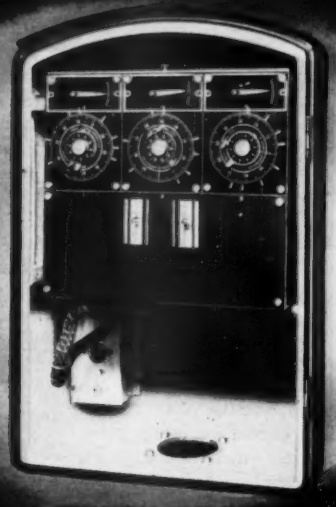
SETS THE PACE

WITH ITS

*Leadership*

Announcing . . . the new

MULTI-DIAL CONTROLLER



For over twenty years Eagle Signal Corporation has been setting the pace in the designing and building of better traffic control equipment. Today, as always, Eagle's years of experience assure you of reliable products at fair prices.

Our "know - how" saves your city time and expense and reduces accident hazards.

Don't be satisfied with just another signal or controller. Demand the best. Make Eagle experience pay you dividends.

Send for information regarding the new Eagle Multi-Dial, unit-construction controller.

EAGLE Signal Corporation

SAFEGUARDING TRAFFIC FOR OVER 20 YEARS

MOLINE - ILLINOIS

This Hough Hydraulic Loader is used in Alpena, Mich., to load crushed limestone.

### *How San Francisco Property Owners Get Original Street Improvements*

THE original improvement of San Francisco streets is an obligation of the owners of the property benefiting from the improvement. Improvements may be performed in accordance with local and state regulations under private contract, public contract, or both.

Under the private contract method, a permit is granted for the improvement when the owners of all the frontage on the street to be improved have signed with a licensed contractor for the work. If the proposed work involves only sewers or crossing improvements, a permit for construction is granted if a majority of the owners benefited make the request.

Under the public contract procedure, the cost of the improvement is assessed to the property benefiting. Proceedings for this work are instituted under a local street improvement ordinance, approved by the state legislature.

A combination of the two methods is employed when more than 60%, but less than 100%, of the property owners in any one block between main intersections have entered into a private contract for the work. With the filing of the contract, the Director of Public Works must, within 30 days, institute public proceedings to improve the unsigned portions of the street under assessment proceedings. Not until after bids have been received and the work awarded for the public portions will a permit be granted to improve those parts included in the private contract.

H. C. Vensano, Director, Department of Public Works, outlined these methods in his recent annual report to the City and County of San Francisco.

### *The Subgrade Makes the Difference*

ALTHOUGH today concrete pavements consist of slabs with an average thickness of eight inches, a considerable mileage of concrete pavement only four or five inches thick were built 25 to 35 years ago. Some of these, which happened to be on adequate substructures, are still in service. Donald J. Steel, Senior Highway Engineer of the U. S. Public Roads Administration, pointed this out in a paper delivered before the American Society of Civil Engineers' spring meeting in Phoenix, Ariz.

The major steps taken during the past twenty years to correct deficiencies in concrete pavement performance have been to increase thicknesses of slabs and, in some cases, to add reinforcement and heavier dowel assemblies, said Mr. Steele. After increasing thicknesses to as high as ten inches of reinforced concrete and after finding this still deficient when placed on fine-grained soils, the final step has been to provide heavy base courses of coarse granular materials. If substantial base courses had been adopted as the first step, rather than the last, then there would be more evidence on which to form reliable conclusions. The available evidence indicates that the greatest single cause of pavement failures in the past has been lack of adequate substructure.

### *Synthetic Rubber and Slippery Streets*

P. W. KING, General Superintendent of San Francisco's Bureau of Streets in the Department of Public Works, had an experience with synthetic rubber that may explain why some streets became slippery during the war. Pine Street, a one-way artery with a vitrified brick center strip, became so slippery, apparently by particles of synthetic tires on the streets, that whenever a slight rain occurred it was necessary to sand the pavement until the drizzle stopped or a heavier rain occurred enabling the automobiles to gain traction. The strip was later coated with rock and a high-viscosity emulsified asphalt, but this was not successful because the steep grades cause the surface to roll up.

Although Superintendent King is not sure that synthetic rubber is the culprit, he is going to remove the slippery brickwork and replace it with a concrete pavement.

In Oakland, Calif., a Caterpillar-Diesel motor grader shapes a new street.

## 24 Hours A Day

Nearly 2000 fires — on an average — occur daily in the U.S.A. and Canada. Every fire destroys property and most fires endanger human life.

## Whenever Fire Occurs

The Fire Alarm Telegraph System, owned and operated by the municipality, provides the only means — *ALWAYS ON DUTY* — for calling the Fire Department.

## Public Safety Demands

A Fire Alarm Box — quickly accessible to any citizen — in residential as well as in business districts — and Life Hazards such as schools, hospitals and other institutions should receive special consideration.

*Write for pamphlet* — "The Fire Alarm Factor"

THE GAMEWELL COMPANY

NEWTON UPPER FALLS, MASSACHUSETTS

## *A False Alarm That Was Justified*

AT four o'clock on an April morning, Mr. and Mrs. William F. Jensen of Seattle, Wash., emerged from Chinatown, New York City. At Canal and Baxter Streets they were set upon by five hoodlums, who attempted to take Mr. Jensen's money. There was no policeman at the moment, and taxis and automobiles refused to be stopped by the wife of the victim, who in despair finally pulled a fire-alarm box "just as I would have done in Seattle."

This was a neighborhood designated by the fire department as "critical," and its assignment to respond to the box consisted of four pumping engines, two ladder trucks, a water tower, and two battalion chiefs. The Jensens were taken to a night court, reprimanded by Magistrate Levine, and fined fifty dollars. Mrs. Jensen was held for an hour while her husband went out to cash traveler's checks to pay the fine.

When New York's Mayor William O'Dwyer, who was on the Pacific Coast, heard the news he telephoned Chief Magistrate Edgar Bromberger to temper justice not with mercy but with sense. The Judge remitted the $50 fine, and the Jensens donated the money to the Policemen's and Firemen's Pension Fund.

Mrs. Jensen, of course, was right in pulling a fire alarm box in New York, Seattle, or any other town or city in the world. The Jensens needed help, any help, as the later apprehension of two of the hoodlums proved. Magistrate Levine also appears to have been right, in the absence of clear proof that such an attack, as described, had actually occurred.

Throughout the nation, fire departments are plagued with false alarms. The New York Fire Department answered 17,344 false alarms last year, out of a total of 62,108 alarms of fire. That means that 28% of the alarms to which from two to seven companies must respond are false. That's one every thirty minutes. Since the magistrates have become more severe, these alarms have decreased. In ninety-nine cases the severity is warranted, but in the other case, good sense must be used.

## Crash Unit Protects Airport

**Asbestos clad firemen pose with the Mack crash unit serving the Kansas City airport. The unit has latest fire-fighting and first aid equipment.**

## Reflectorized Batons for Traffic Control

**Reflectorized batons have become increasingly useful among public utility crews and police, fire, and water departments. One is shown here in action by the Traffic Division of the Richmond, Va., police department. Approximately 16 inches long, the baton consists of a light-barrel and a battery case. The light-barrel, fitted at the top with a black cap, is of clear lucite with eighteen 11/16-inch Simsonite yellow, plastic-reflector buttons recessed in three rows of six each. Usually the reflector buttons alone give sufficient light when vehicle lights are used at normal brightness. The inside light may be used if additional brilliance is required.**

**This Mack fire engine performed a beyond-the-call-of-duty service recently when the Board of Water Supply at Honolulu, T. H., found it necessary to break a 16-in. main serving one of its rural areas in order to make new connections. Water was carried around the break in an uninterrupted flow.**

# LURIA STANDARD BUILDINGS

## FOR AIRPORTS & INDUSTRY

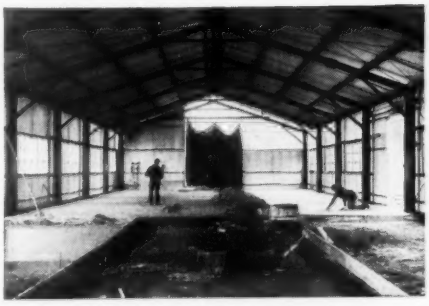
*Hangar and Shops—Westchester County, N. Y.*

## MAINTENANCE AND STORAGE HANGARS

Luria Standard Hangars are available with clear door openings from 60 feet to 160 feet with contour clearances carefully chosen to accommodate all standard makes of planes. By allowing complete freedom of choice in length and in size and type of lean-to's, these Standard Units can be adapted to meet any combination of shop, storage and office requirements. All sizes of Luria Standard Hangars are designed in two weights—one to meet the load requirements of northern climates, and the other to effect the utmost economy for southern climates. Supplementing the Standard line, Luria is also prepared to design and furnish Hangars to meet any special requirements.

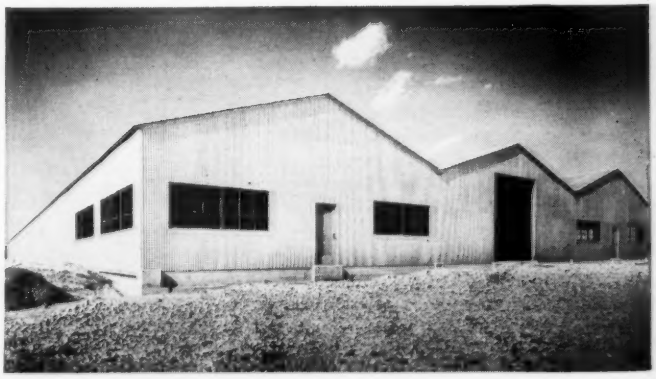
## INDUSTRIAL BUILDINGS

Luria offers a complete line of Standard Industrial Buildings varying in clear span widths from 40 feet to 100 feet with inside clearance at eaves ranging from 12 feet to 20 feet. All Luria Standard Buildings are permanent structures designed for maximum utility and flexibility. The unit system of expansion both in width and length combined with a choice in location of doors and sash provide unlimited variation in size and arrangement. These features allow a selection of combinations that are calculated to meet most individual requirements, thereby eliminating the expense of special engineering and gaining the benefit of production line economy. Simplicity of design featuring prefabricated frames of structural steel, insures easy handling and economical erection.



*Interior single A-40 — Peoria, Ill.*

● **WRITE FOR BOOKLET AND PRICES**



*Warehouse—Multiple 3 A-40's — Bayonne, N. J.*

**LURIA ENGINEERING CORPORATION**

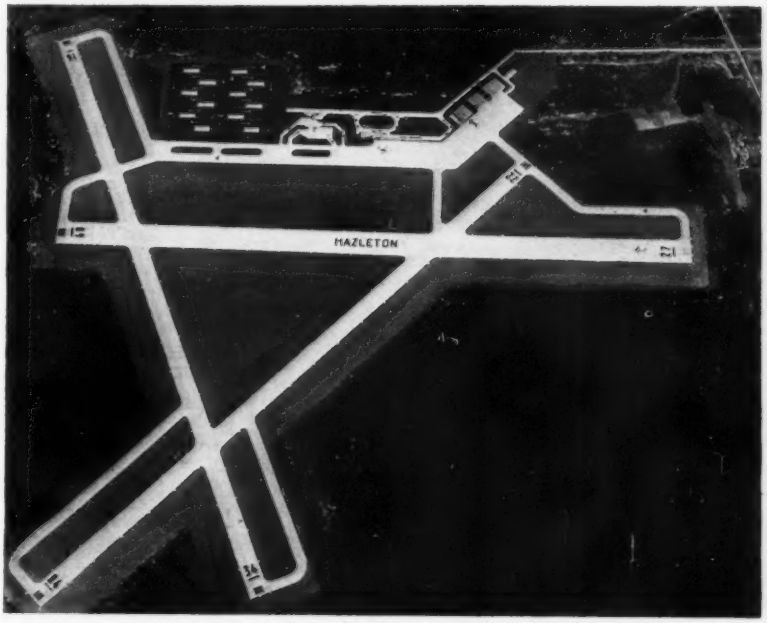
500 Fifth Avenue, New York 18, N. Y.

First National Bank Bldg., Chicago 3, Illinois

## Hazleton, Pa., Prepares Airport Master Plan

THE City Council of Hazleton, Pa., has received from the General Airport Co. of Stamford, Conn., a complete master plan and report for the proposed development of the Hazleton Municipal Airport. A scale model, constructed by Gregor-Read, Inc., an associate company of the General Airport Co., was also prepared. As one of the Pennsylvania cities on the 1947 Airport Program, Hazleton is scheduled to receive federal aid for construction.

The basic idea of the plan is to permit expansion without the necessity of demolition or a stoppage of service.




**This photograph shows the model of the proposed Hazelton airport facilities, including a one-story administration building easily enlarged when needed.**

### *Make At Least One Runway Flood-Free*

EVEN storms of such ferocity that may occur but once in a hundred years should be anticipated in planning the drainage facilities of airports. Value of human life and the high cost of airplanes make it "mandatory" that airports with a high intensity of traffic have at least one runway designed to be free of flooding from such a storm. So said Edward Koehm, Senior Engineer and head of the flood control design section, U. S. Engineer office, Los Angeles, Calif. He presented a paper prepared in collaboration with R. J. Shultz, engineer head of the same office's landing fields section, at the spring meeting of the American Society of Civil Engineers in Phoenix, Ariz.

### *Quieter Airports?*

ALTHOUGH the problem of quieter airports has not been completely solved by research, certain methods have been developed that reduce this noise-nuisance.

According to Civil Aeronautics Administration authorities, much of the annoyance can be avoided by changing the traffic patterns around airports and by pilot cooperation in using suitable power and propeller pitch settings. Much of the noise originates during landings and takeoffs from fields close to residential areas. In such cases, the traffic pattern around the airfield often can be changed to take the planes over water, industrial districts, or wastelands. At the Los Angeles Municipal airport, for example, takeoffs and landings are made over unpopulated areas, wherever possible. In addition, airline pilots now maintain a minimum of 1,000 feet while approaching the field, descending only after they are reasonably close to the landing area.

## Some Problems in Airport Management

IT is predicted that within a comparatively short time the total expenditure for terminal airports will pass the two billion mark, making this a major commercial enterprise not only in relation to business, but to the community's economy.

This brings up the first of many problems: Is the airport to be completely self-supporting, maintained by the public of each individual community, supported by the government?

National subsidies for improving transportation are not without precedent. Many billions of federal, state, and local public funds have been spent for highways, harbors, and railroads. And although the Federal Government has given aid in the past in the improvement of airports as a by-product of unemployment relief and for military needs, it is not expected that government aid will be available for maintenance or operation of airports. Nor is it likely that local taxpayers will be willing to contribute yearly to the costs of airport operations. The answer seems to be that, if aviation is to have a healthy, permanent growth, it must eventually pay its own way. A study made by the Division of Research of the Graduate School of Business Administration at Harvard University indicates that this is entirely feasible.

This report states that with a sound financial plan aggressively developing all sources of revenue, the majority of terminal-type airports can be made self-supporting in a comparatively few years. The revenue sources can be briefly divided into four classifications—rentals of land, rental of hangars or of storage space in hangars, rental of shops; — terminal building revenues from aviation activities and from concessions relating to operation of the terminal building; — landing area charges;—miscellaneous concessions including revenue from oil and gasoline and income from public utilities such as water and electricity.

The amount of revenue derived will depend on the ingenuity of the airport management in capitalizing on all possible sources. The future of American's air progress may depend on how efficient management is in making air travel self-sufficient.

J. G. BASTOW,
*Assistant Chief Engineer and Assistant Port Manager of the Port of Oakland, Calif.*

# Stairway to Steel-Service

## One Call Brings Quick Shipment of All Steel Requirements

The need for steel and a call to the nearest Ryerson Plant—that's all it takes to start the smooth-flowing mechanism of Ryerson Steel-Service—a service designed to meet your steel needs as conveniently and as promptly as possible.

At Ryerson each step in the process of filling your order is geared to peak efficiency—carefully executed to eliminate every unnecessary delay between order desk and point of delivery. The most modern steel cutting and handling facilities meet your specifications quickly, with maximum precision.

The Ryerson system of one order—one invoice for a whole group of varied needs saves you time and detail work. And when the steel you need is not immediately available from stock experienced Ryerson engineers and metallurgists gladly assist you in the search for a practical alternate.

Ryerson Steel-Service is the cumulative result of more than a century of experience in the business of steel distribution. Whether your order is measured in pounds or tons, you are always assured of prompt personal attention. That's the reason so many buyers contact Ryerson for all steel-from-stock requirements.

JOSEPH T. RYERSON & SON, Inc., Steel-Service Plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles.

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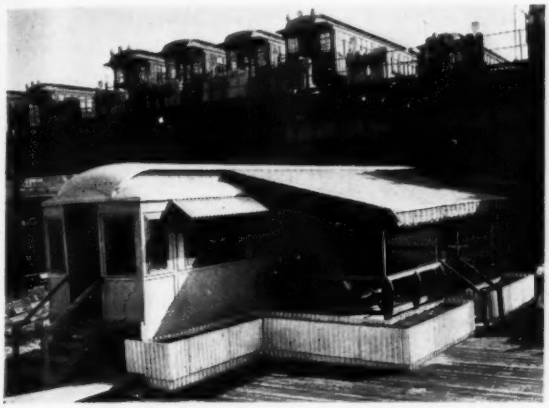
**Principal Products: Bars—Alloy & Carbon, Hot Rolled & Cold Finished • Structurals. Plates • Sheets • Tubing • Allegheny Stainless • Babbitt • Machinery & Tools, Etc.**

# Sanita—The El Car Riviera

By WILLIAM J. POWELL, Commissioner
*Department of Sanitation, New York, N. Y.*



Pictured at top are the old El cars. One of the cars is shown below, after its renovation.

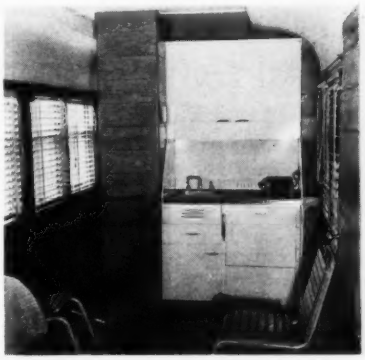
Pictured here is the Old Swimming Hole, with some continental innovations, at the Sanita Hills.

IN 1940, some of the old El cars that use to rattle their way through Manhattan were headed for the scrap pile. Although the cars were of sound construction, New York City had no further use for them.

Today, they are used to house vacationers at Sanita Hills, a resort in Holmes, Dutchess County, N. Y. The idea of remodeling these cars resulted in summer resort housing for members of the Department of Sanitation.

The cars were stripped of their hard seats and other equipment and completely renovated to include shower, lavatory, sink, electric stove, refrigerator, and all other comforts of home. The cars were moved from the rails of New York City and distributed over 1,100 acres of forest and lake. Then a Big Top was added for social functions and movies; a Manor House for the big splurge of the week, and a cafeteria for those who preferred eating out to cooking for themselves.

At present, only members in the lower paid brackets of the Department of Sanitation are permitted to take advantage of this resort, with costs scaled to meet the individual economic levels of the employes. The proceeds from an annual Yankee Stadium baseball game between the Fire and Police Departments pays for the project which originally was financed to a large extent by debenture bonds that the employes themselves purchased.



The cooking unit of a Pulmanette.

This new move on the part of the government has not only provided employes with a recreational escape from the city, but has created a greater feeling of mutual understanding between official and minor employe.

## *Trichinosis Incidence*

IN CANADA where the law requires that garbage fed to hogs be cooked, the reported number of cases of trichinosis is about one-twelfth as great per-one-hundred-thousand population as it is in the United States. This figure was reported by the United States Chamber of Commerce Health Advisory Council.

Freezing of pork at a temperature of 5 degrees for twenty days or at zero degrees for seventy-two hours also renders the meat free of the parasites.

Since pork consumers often cannot be assured that the pork they are eating comes from hogs fed only cooked garbage, or that the pork has been adequately frozen, the only dependable protection is not to eat pork that has been improperly cooked.

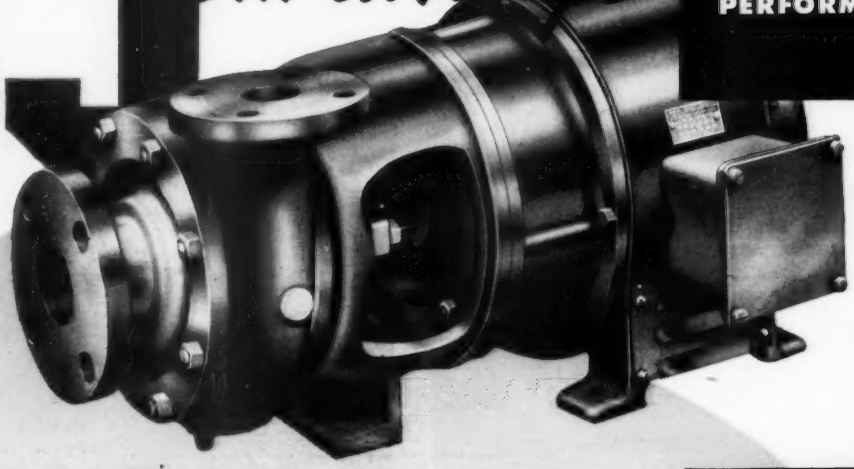
Symptoms of trichinosis may appear from twenty-four hours to seven days or longer after eating infected meat. They include nausea, vomiting, and diarrhea. Muscle soreness or pain, swelling of face and eyelids, laryngitis, cough, chest pain, and difficulty in swallowing and breathing also may occur.

## *Incinerators for Homes*

AN INCINERATOR in every home is the proposal of Detroit's Comissioner of Public Works Ernest Jones. His suggestion is that the city supply and install the incinerators, and that the residents operate them by electricity or gas. On a retail basis, the incinerator sells for $130 and uses approximately the same amount of fuel as an electric iron or a simmer burner. If the city purchased them, Mr. Jones feels that the cost would be much lower, and their use would virtually eliminate the collection cost of $17,000,000 for garbage and refuse.

# BJ Bilt-on Pumps

**FOR HEAVY DUTY PERFORMANCE**



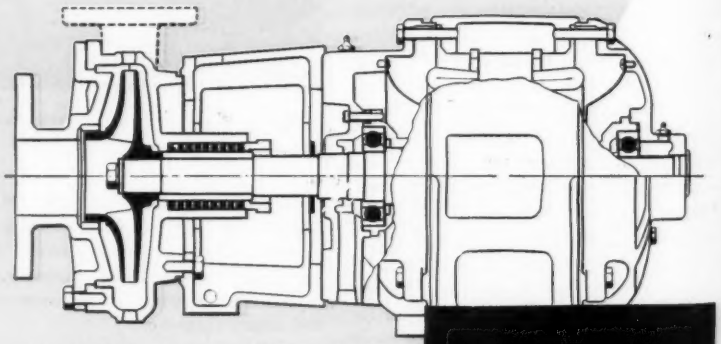
**MOTOR AND PUMP CLOSE-COUPLED.** BJ Bilt-on Pumps are compact units consisting of induction motor (drip-proof or explosion-proof) and single stage, single suction centrifugal pump. Motor and Pump are close-coupled and have a *common* shaft.

**RIGID MOUNTING UNNECESSARY.** Since the shaft is common to both pump and motor, positive alignment is assured; hence a rigid foundation is not required. Bilt-ons operate in any position from horizontal to vertical. A Bilt-on Pump is often mounted on a hand truck or suspended from a sling for portable use.

**BIG PERFORMANCE.** Bilt-on efficiencies are very high. Hydraulic performance is comparable to that obtained with double suction pumps of similar size. Bilt-ons are widely used in municipal, industrial and agricultural applications, pumping warm or cold liquids of every description: water, oil, gasoline, chemicals, etc.

**RUGGED CONSTRUCTION.** Two heavy, grease-packed ball bearings, mounted in motor-end bell housings, are enclosed to exclude dirt and water. Wide spacing of bearing centers plus heavy shaft permits overhanging the impeller without danger of shaft deflection. Standard Bilt-on stuffingbox with cage ring contains 7 packing rings; without cage ring it contains 9 packing rings. Steel water-jacketed stuffingbox or mechanical seals (single or double) can be supplied at additional cost.

**WHERE LITTLE SPACE IS AVAILABLE**



***The Complete Line*** **covers a wide range of sizes in standard and special designs. Stocks maintained at the following factories: Houston, Bethlehem, Fresno and Los Angeles.**

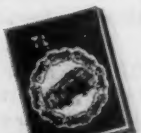
**CAPACITIES: TO 2400 GPM**

**HEADS: TO 500 FT.**

**Byron Jackson Co.**

**LOS ANGELES 54, CALIFORNIA**

***Offices in Principal Cities***



*Get this new BJ Bilt-on Pump bulletin #46-2000. Write to Dept. 306, Byron Jackson Co., P.O. Box 2017, Terminal Annex, Los Angeles 54, Calif.*

## Limitations of the BOD Test

ONE factor stands out when studying the sewage treatment developments at Ridgewood, N. J.* As Superintendent Hood says, "The operation of the Ridgewood plant also illustrates that there is more to sewage treatment than a consideration of BOD alone. One is on unsafe ground if he excludes the carbonate equilibrium from design consideration."

In other words, it is not only important to know what is *in* the sewage in the way of harmful material, but also you must know the type of water in the sewage so that you can remove this material.

This is true of both chemical precipitation as applied to sewage treatment and biological oxidation, since both are attempting to do the same job by different means. "Oxidation" involves a loss of electrons, producing an increase in positive valence, instead of being simply a process of supplying oxygen. Remembering this, it is not hard to see why the biological oxidation process which forms its own floc works best in an atmosphere conductive to this action. Treatment is easiest when the water vehicle is soft with a low pH-alkalinity value.

**Superintendent John Hood shows two examples of raw and treated sewage.**

The fact that the Ridgewood plant can produce an acceptable effluent with limited settling capacity and with the bulk of the treatment thrown on the trickling filter shows how Superintendent Hood was able to capitalize on his knowledge of the pH alkalinity factor and produce good results under difficult conditions.

## New York City's Decade of Progress in Sewage Treatment

IN two installments Nathan I. Kass, Chief, Bureau of Sewage Disposal Operation for New York City, tells of the progress that this city has made in removing pollution from New York Harbor. This month he gives the background and outlines the construction of the first two plants, Coney Island and Wards Island. Next month, he will report on the other plants and will list some of the benefits and advances that these constructions have produced.

What have these plants meant to the sanitary engineering profession? What have the studies produced that others can use?

- They have proved that harbors do not "sweep clean" with every tide, but that the waters have a tendency to oscillate, retaining and concentrating the pollution load.
- They have demonstrated that sludge barged to sea for disposal does not produce a nuisance under ordinary operating conditions, that the water quickly recovers and returns to its original state.
- They have shown the economy and reliability of power derived from sludge gas.
- They have uncovered the possibilities of improved treatment by "step aeration", and treatment under certain conditions by "modified aeration".
- They have made practical application of flexibility of treatment by chemical precipitation in order to provide seasonally a better effluent.
- They increased the removals of solids from 11 tons per day in 1936 to nearly 300 per day in 1946. This was done at a cost that dropped from $117 per ton of dry solids in 1934 to $20 in 1946.
- They have been able to treat this sewage at a per capita cost of less than 70 cents per year.

* See page 72 of THE AMERICAN CITY for May.

### *Elutriation Benefits*

SAN FRANCISCO'S Richmond-Sunset sewage treatment plant was able to reduce the alkalinity of its digested sludge from an average of 2,020 ppm to 400 ppm, a reduction of 80%. This was done by washing all sludge in elutriation tanks using counter-current flow with effluent as wash water in a ratio of approximately three volumes to one of sludge.

As a result of this elutriation, the vacuum filter operated regularly throughout the year, dewatering sludge that had been conditioned with an average of only 4.37% ferric chloride on a dry basis. The filter was occasionally troubled by deposits of iron oxide and scale on the filter screen. When the cloths were replaced, these were removed by rotating the drum for about eight hours in an approximately 20% hydrochloric acid solution inhibited with aniline oil.

H. C. Vensano, Director of Public Works, announced these findings in his recent annual report to the city and county of San Francisco.

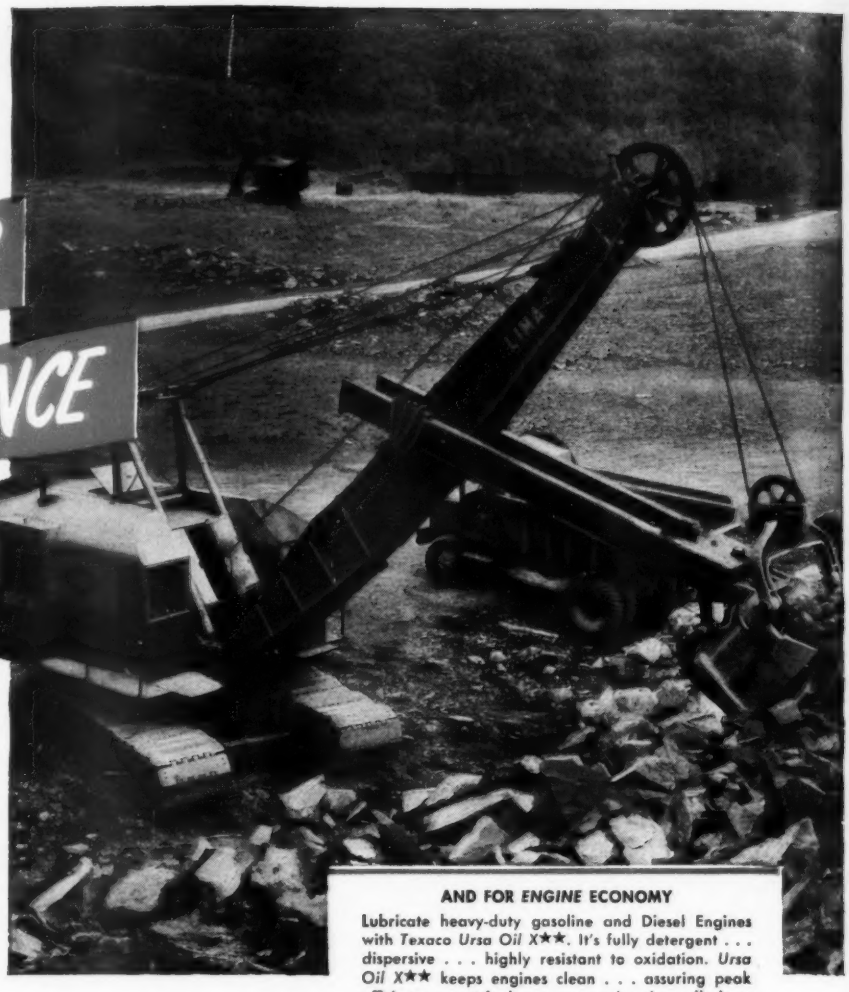
### *Federation of Sewage Works Associations Holds Twentieth Annual Meeting*

THE Federation of Sewage Works Associations will hold its twentieth annual meeting July 21 to 25 in San Francisco, concurrently with the 1947 Conference of the American Water Works Association in San Francisco.

Particularly significant sessions, to be held jointly with the AWWA on Tuesday and Wednesday afternoons, are those scheduled to include a discussion on "Ground Water Pollution" and "Reclamation of Sewage Effluents." N. T. Veatch, Earnest Boyce, Abel Wolman, L. V. Wilcox, and Dario Travaini, already have accepted assignments in this symposium.

Tuesday morning's session will consist of papers describing the sewage works improvements in development at San Francisco, Calif., and Portland, Ore. Papers on stream pollution and industrial waste will be read on Wednesday morning, and the Thursday morning session will be devoted to the Annual Operators' Forum, which was arranged and presented by the California Sewage Works Association. A symposium on the BOD determination will close the technical program on Thursday afternoon.

# THE LUBRICANT THAT CUTS YOUR MAINTENANCE COSTS



**AND FOR *ENGINE* ECONOMY**

**Lubricate heavy-duty gasoline and Diesel Engines with *Texaco Ursa Oil* X★★. It's fully detergent . . . dispersive . . . highly resistant to oxidation. *Ursa Oil* X★★ keeps engines clean . . . assuring peak efficiency, great fuel economy, and savings all along the line on maintenance and repairs.**

NOTHING beats *Texaco Marfak* for "lubricating persistency". It's tough—holds together—and *stays in bearings* despite the squeeze of heavy loads and the pounding of rough service. *Marfak* also prevents dirt and moisture from getting in — gives longer-lasting protection that cuts maintenance costs.

In wheel bearings, use *Texaco Marfak Heavy Duty.* Its long lasting protection comes from its unique ability to provide a fluid lubricating film inside the bearing while retaining its original consistency at the outer edges — thus sealing itself in, sealing out dirt and moisture.

*More than 250 million pounds of Marfak have been used to date!* You couldn't ask for better proof of quality and performance.

Contractors everywhere gain many time- and money-saving advantages by using the Texaco Simplified Lubrication Plan. Ask about it. Call the nearest of the more than 2500 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

**TEXACO Lubricants and Fuels**

**FOR ALL CONTRACTORS' EQUIPMENT**

**Tune in . . . TEXACO STAR THEATRE presents the NEW TONY MARTIN SHOW every Sunday night. See newspaper for time and station.**

# Stop—Check and Mail

***Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write direct to the manufacturers, or circle the identifying numbers on this coupon and mail it to The American City Magazine, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.***

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## Pumps Operate Under Water

**742** The Byron Jackson Co., Los Angeles 54, Calif., will send municipal officials Bulletin No. 46-5000, which describes its submersible pump. This close-coupled deep-well turbine pump and electric motor unit operates entirely submerged in water of any well-depth.

## Street-Sweeper Can Carriers

**743** The Tarrant Mfg. Co., East Ave., Saratoga Spa., N. Y., manufactures a carrier for street-sweeping cans, available either rubber- or steel-tired and with roller or plain bearings. All frames a rewelded. For literature, write to the company.

## How To Design Concrete Beams

**744** A new bulletin on the subject of beam factors has just been issued by the Portland Cement Association. Every engineer who designs concrete structures should have this information and should study the supplemental data on volume changes in concrete. Write to the Portland Cement Assn., 33 W. Grand Ave., Chicago 10, Ill., for Bulletin #18.

## Job Evaluation

**745** If you are interested in developing equitable pay schedules, the Business Research Corp., 79 West Monroe St., Chicago 3, Ill., will be glad to send you its bulletin *Building a Sound Wage Structure Through Job Evaluation.*

## New Heavy-Duty Engine

**746** The Climax Engineering Div., Climax Industries, Inc., Clinton, Iowa, will send you its bulletin on a new, compact, heavy-duty V8 engine, 330 hp at 1,200 rpm. It is an instant-starting prime mover that occupies a small amount of space.

## Adjustable Traffic Signals

**747** The Crouse-Hinds Co., Syracuse 1, N. Y., manufactures adjustable traffic signals—signals which may be turned and set at angles to directly face oncoming traffic, particularly valuable at assymetrically intersecting streets. Write for Catalog 226.

## Adjustable Sewer Cleaner

**748** The Expanding Sewer Machine Co., 108 East Walnut St., Nappanee, Ind., will send you information on its expanding root cutter and sewer cleaner that cleans the entire sewer surface and is adjustable in thirty seconds to any size sewer of from 8 inches to 30 inches.

## Calibrated Tanks for Water Meter Testing

**749** Ford water meter testing tanks are calibrated in gallons, cubic feet, and percentage fast and slow, and are available in five sizes. A catalog with information on water meter testing, as well as a full description of the company's tanks and test benches, may be obtained by writing to The Ford Meter Box Co., Inc., Wabash, Ind.

## Water-Cooled Air Compressors Prevents Over-Heating, Freezing

**750** Gardner-Denver air compressors have water jacketing on all cylinders. This prevents overheating in hot weather, and cold "unlubricated" starts in sub-zero weather. For data on the line of completely portable machines, write Gardner-Denver Co., Quincy, Ill.

## Steel and Fibre Brooms

**751** The Otto Gerdau Co., 82 Wall St., New York 5, N. Y., will supply samples and quotations to municipal officials of its line of fibre, stalk, splint, and steel-wire sweeper brooms.

## 1/2- to 20-Ton Trucks

**752** GMC trucks may be obtained in sizes from ½ ton to 20 tons, diesel or gasoline engined, readily adaptable for almost any type of job. For specifications, write the GMC Truck & Coach Div., General Motors Corp., Pontiac, Mich.

## Eliminate Water Shock With Automatic Stop-Starter

**753** The Golden-Anderson Valve Specialty Co., Pittsburgh 22, Pa., invite correspondence concerning your municipality's flow-control problems, and will give you information about its "stop-starter" altitude valves that automatically stop the pump as the valve closes.

## Fog Fire-Fighting Unit

**754** The Hardie fog gun can provide water streams, intermediate spray, or complete fog, and, therefore, is adaptable for various types of flames. For information about the fog gun, or the Hardie pumps—35 gpm at 800 psi and 60 gpm at 800 psi—write The Hardie Mfg. Co., Hudson, Mich.

## How to Splice Underground Cable

**755** A new bulletin issued by Hazard Insulated Wire Works, Division of The Okonite Co., Wilkes-Barre, Pa., describes in detail the construction, uses, and most efficient methods of splicing the company's non-metallic armortite underground cable.

## Non-Tuberculating Pressure Pipe

**756** Transite pressure pipe is constructed of asbestos-cement, which means non-tuberculation, resistance to soil corrosion, and immunity to electrolysis. For full information, write for Brochure TR-11A, Johns-Manville, Box 290, New York 16, N. Y.

## Traffic Zone-Marking Equipment

**757** Kelly-Creswell equipment includes pressure cleaning mechanisms which permit constant delivery of clear-cut markings. Traction is air-actuated. For specifications, write Kelly-Creswell Co., Xenia, Ohio.

## Flat-storing Fire Hose Saves Space and Time

**758** Bi-Lateral hose, which can be stored in a flattened position, requires less space in the fire house and enroute to fire. For information, write to the Bi-Lateral Fire Hose Co., 20 N. Wacker Dr., Chicago, Ill.

## Trolley Coaches

**759** The trolley coaches combine the best features of the bus and the trolley—curb loading, rubber tires, absence of gasoline fire danger, and fumes. Specifications on request. Write to the Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

## Automatic-Feed Mimeograph Duplicators

**760** Model 90 for schools and smaller municipal offices and Model 91, for other organizations, have automatic feed and are operated manually. For additional information, write the A. B. Dick Co., Dept. AC-547, 720 West Jackson Blvd., Chicago 6, Ill.

## Weed-Killer Sterilizes Soil

**761** Dolge weed-killer not only kills weeds but sterilizes the soil so that no more weeds can sprout. For areas where other vegetation is desired—grass, flowers—E. W. T. selective weed-killer can be used to destroy only the weeds. For complete data, write to The C. B. Dolge Co., Westport, Conn.

## Pipe Made on the Site

**762** The Lock Joint Pipe Co., P. O. Box 269, East Orange, N. J., continues its policy of setting up on-the-site manufacturing plants near the project location when it receives an order for prestressed concrete cylinder pipe. For details on how this method has worked and proven highly efficient, write to the company.

*(Continued on page 23)*

# PROGRESS *on the march*

The minute you see activities like those pictured here, you know you've come upon a community that's "going places." With equipment that can handle "big chunks" of street and housing improvements in little time and at economical cost, Richfield Village, near Minneapolis, is giving itself room to grow and inviting more people to share its friendly neighborhood.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

Caterpillar" Diesel No. 12 Motor Grader improving oad. Another No. 12 grades alleys, does other work n housing project.

Caterpillar" Diesel D4 Tractor, equipped with Traxca- ator, working on street widening. Versatility enables uifit to do many other jobs—stripping gravel pits, ading road materials and rubbish, moving snow, etc.

**CATERPILLAR DIESEL**

REG. U.S. PAT. OFF.

ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

# Stop—Check and Mail

Use Coupon on Page 21

### Meters For Parking Lots

763 The Park-N-Lot model, manufactured by the Magee-Hale Park-O-Meter Co., Commerce Exchange Bldg., Oklahoma City 2, Okla., provides a permanent solution to parking problems with parking meters that register for ten-hour periods. Data will be furnished on request.

### Carryhaul Trailers

764 Martin carryhaul trailers are available in sizes for small as well as large hauls. Featuring a low center of gravity and ease of loading, the trailers give dependable and economical service. Write to the Martin Machine Co., Kewanee, Ill., for additional information.

### Simplified Water-Service Stops

765 The McDonald Diamond Line Corp. stop is designed without coupling, with the inlet end threaded to fit the Mueller Machine and the outlet end threaded to fit iron pipe the next size larger than the stop. Additional information may be obtained by writing to the A. Y. McDonald Mfg. Co., Dubuque, Iowa.

### Garbage Truck

766 The Gar Wood Bucket Loader is filled at a low level, then the loading bucket travels to the top of the fully-enclosed body and dumps its contents into the receiving hatch. The tailgate opens fully to permit complete discharge of load. Write for Bulletin No. BL 1, Gar Wood Industries, Inc., Wayne, Mich.

### Sewage Plant Equipment

767 Large-scale dewatering of sludge both activated and digested, with patented fire-conduits to eliminate scorching or burning and producing a high-quality dried product for fertilizer or earth conditioner, is obtained by the Conkey Sludge Filter—just one of the mechanisms manufactured by the General American Transportation Corp., 10 E. 49th St., Dept. 830b, New York 17, N. Y.

### Centrifugal Pumps

768 If your municipality is planning to enlarge its water-supplying capacity, you may be interested in writing to the De Laval Steam Turbine Co., Trenton 2, N. J., for information about its line of centrifugal pumps.

### Detachable Truck Bodies Act As Rubbish Depositories

769 The Dempster Dumpster features a detachable truck body, which acts as a rubbish depositing unit and can be placed where needed. It is picked up by trucks, emptied, and returned to its position for collecting additional refuse. The entire operation is handled by the truck driver. For complete information, write to Dempster Brothers, Inc., 357 Springdale Ave., Knoxville 17, Tenn.

### A Line of Small Versatile Air-Cooled Engines

770 Information on its line of air-cooled engines will be sent upon request by the Briggs & Stratton Corp., Milwaukee 1, Wis. The 4-cycle gasoline-powered engines are adaptable for construction, railroad, and farm equipment, and for industrial uses.

### Traxcavators Do Most Everything

771 The Trackson Co., Dept. AC-57, Milwaukee 1, Wis., will send you information on the varied uses to which a traxcavator can be put—digging, loading, snow clearance, pipe laying, ditching.

### Elevated Steel Tanks

772 For printed matter and suggestions on the most efficient type of elevated steel tank for your municipality's needs, write to the Pittsburgh-Des Moines Steel Co., 3412 Neville Island, Pittsburgh, Pa.

### Reflectorize Signs in the Field

773 The Prismo sign kit will enable traffic departments to reflectorize signs, culverts, guard rails, bridges, and all vertical surfaces. Skilled personnel is not required, and the reflectorization can be done in the field. Write to the Prismo Safety Corp., Municipal Division, Huntingdon, Pa.

### Low-Cost Pipe Installation With Underground Bore

774 A new sixteen-page bulletin may be obtained from the Hydrauger Corp., Ltd., 116 New Montgomery St., San Francisco 5, Calif., describing the company's compressed-air-operated horizontal earth borers, and including a description of a new hand-held model.

### Fire Hydrants

775 The Rensselaer (Corey) fire hydrant is constructed to give immediate response, permit easy cleaning and maintenance, and make connection of the fire hose easy. For specifications of construction, write the Rensselaer Valve Co., Troy, N. Y.

### Steel Products

776 Joseph T. Ryerson & Son, Inc., 2558 W. 16 St., Chicago 80, Ill., can supply your needs, whether your organization requires large or small amounts of steel products. Write for information about types of product available.

### Soil Stabilization Methods

777 Seaman Motors, Inc., Milwaukee 3, Wis., will send you its informative booklet, Bulletin AC-25, entitled *Soil Stabilization Methods*, for use in street construction and airport runways. The bulletin contains information on efficient methods of obtaining a uniform mix.

### Street Flusher With Low Center of Gravity

778 The Standard Steel Works street flushers are constructed with longitudinal sills distributing the tank weight along the entire truck chassis, lowering the center of gravity to result in less wear and tear on the truck, and a good load distribution. For details of Model 7 or tractor flusher, write Standard Steel Works, North Kansas City 16, Mo.

### Conditioning Coagulant

779 Ferri-Floc is a partially hydrated ferric sulphate usable for the conditioning of water, sewage, industrial waste, and sludge. Requiring no careful proportioning of water to the salt, the product may be stored in open bins. For detailed information, write the Tennessee Corp., Grant Building, Atlanta 1, Ga.

### Fire Department Apparatus

780 From 500- to 1,250-gallon triple-combination pumpers, squad wagons, city service, and quadruple combination ladder trucks are manufactured by the Mack Mfg. Corp., Fire Engine Division, Long Island City 1, N. Y. Write for detailed information.

### Pipe Joint Compound Applied Cold

781 TMC pipe-joint compound is applied cold, eliminating the necessity of preheating and costly heating equipment. For details of this compound which is flexible enough to use even on slight deflections, write to Thompson Materials Corp., 204 West St., New York, N. Y., for Data Booklet No. 2A.

### Truck-Mounted Tower Lift

782 A new bulletin describing the American Tower Lift's application for maintenance and repair work on street lighting and signal equipment and tree trimming will be sent upon request by The American Coach and Body Co., 9503 Woodland Ave., Cleveland 4, Ohio.

### Mechanical Ditcher Handles Any Material

783 The B-G ditchers, with self-cleaning "kick-out" digging buckets on the vertical boom, can handle anything from sticky gumbo to coral rock. For details of specifications and models, write the Barber-Greene Co., Aurora, Ill.

### Low-Cost Plane Hangars And Industrial Buildings

784 The Luria Engineering Corp., 500 Fifth Ave., New York 18, N. Y., will send you a booklet describing the standard buildings it can erect for you, and quoting the prices of various types of structures. Variations to suit particular needs can also be supplied by Luria.

### Portable Pumps

785 The Homelite Corp., Port Chester, N. Y., will send to officials upon request its booklet listing the various types of "carryable" pumps—pumps which can be carried by one man. Among the models described are those for pumping manholes and flooded cellars and for fire-fighting and construction work.

### Modern City Transit

786 The Brooklyn, N. Y., rehabilitation program includes thirteen additional trolley coach lines using 435 trolley coaches. This decision followed seventeen years of experience with The Cortelyou Road trolley coach line in Brooklyn, and a year's survey of operation in other cities. For a description of this Brooklyn program, write Ohio Brass Co., Mansfield, Ohio.

### Surveying Instruments

787 The small level to do the specialized job around building improvements is described in leaflets issued by Leupold and Stevens Instruments, 4445 Glisan St., Portland 13, Ore. The Leupold builder's level not only does the work of a level, but it turns horizontal angles and is convertible for plumbing vertical lines. This is only one type of surveying instrument about which the company will send you literature. Write for information about any type of hydrographic, navigation, surveying, or hydraulic control instrument.

### Road Signs

788 For information on road signs—plain, embossed, or reflectorized, glass or lucite buttons—write the Miro-Flex Co., 1824 East Second St., Wichita, Kans. The signs are galvanized on bonderized steel with baked enamel finish.

### Books for City Officials

789 The Reinhold Publishing Corp., 330 W. 42nd St., New York 18, N. Y., has in stock a large number of books on municipal building, planning, and government. For a complete listing of the titles and subject matter of books, write to the company.

### Trencher Works Close to Obstacles

790 The Parsons 221 trenchliner is particularly effective in city construction jobs, being able to sidestep surface obstructions as close as 10 inches from the trench being dug. The telescoping ladder-type boom digs over and under obstructing pipes in the trench. For specifications, write the Parsons Co., Newton, Iowa.

(*Continued on page* 26)

# Here's why sewage and waterworks *operators* prefer CABINETROL—General Electric's *factory-assembled* control

**1 NEATER:** All components completely enclosed, all exterior surfaces flat and uniform, easy to keep clean; one attractive color.

**2 SAFER:** Compartments secured with lock and key, no exposed bus bars or wiring; safety lock-outs on breakers to prevent injury during remote repairs.

**3 MORE ACCESSIBLE:** Hinged doors—no screws—facilitate frequent inspection and cleaning, troubles spotted before they become serious.

**4 LESS SUPERVISION:** All control functions centralized, all plant operations checked at a glance.

**5 EASIER INSTALLATION:** Cabinetrol is factory-assembled, co-ordinated and tested. Simply set it in place, connect incoming and outgoing leads.

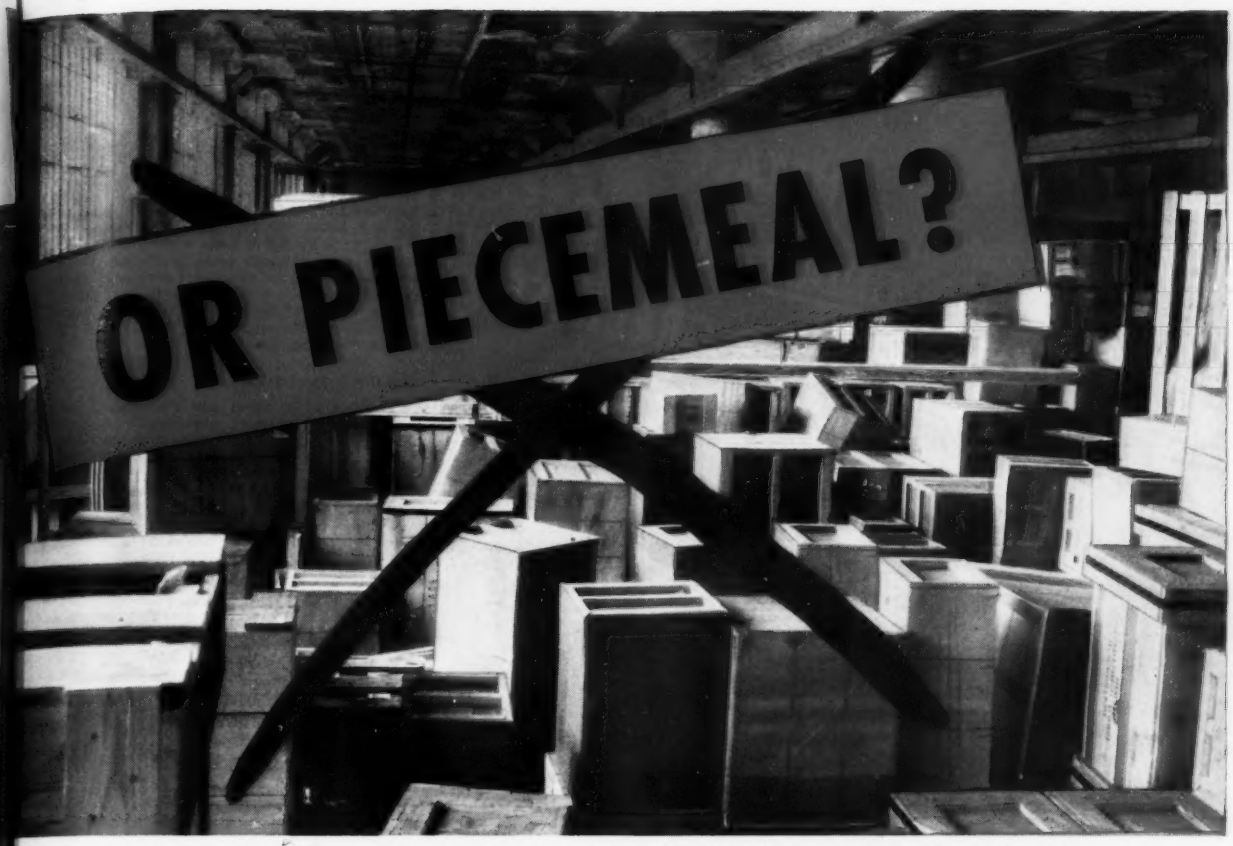
**6 SIMPLER:** Cabinetrol can centralize in one location these and many other devices: flow meters, motor controls, level controls, temperature meters, alarm circuits, generator control, metering for light and power circuits, feeder circuits to outlying buildings—even a clock.

**7 LESS SPACE:** Cabinetrol can be built into a wall between two adjoining rooms in a plant.

**8 EASILY ENLARGED:** Can be expanded as plant grows, without losing uniformity.

GE

CO-ORDINATED
WATER-PLANT...SEWAGE-PL
ELECTRIFICATION




Control equipment ordered piecemeal means installation headaches, wiring headaches, co-ordination and testing headaches

# These Cabinetrol Advantages Appeal to CITY OFFICIALS

**1 LOWER INSTALLED COST:** The Cabinetrol on the opposite page actually cost less installed than the comparable made-up assortment of individual controls shown above. And it is costing less to maintain.

**2 PRE-ENGINEERED:** State your requirements functionally—with a one-line diagram if you wish—General Electric engineers do the rest. They will make up a Cabinetrol unit tailor-made to your particular requirements, *but* using standardized components—that's where you save.

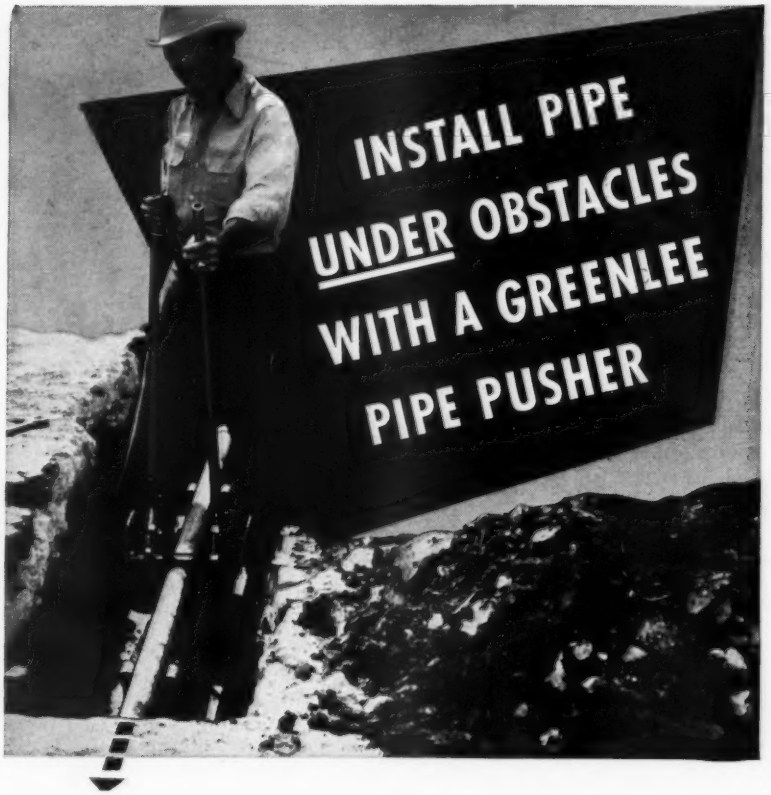
**3 UNIT RESPONSIBILITY:** If you elect to purchase all the electric equipment for your new sewage or waterworks plant from General Electric, including Cabinetrol, motors, unit substation and cable, we will assume the added responsibility for the co-ordination and supervision during installation of all this electric equipment—thus simplifying your engineering, buying, installation and servicing because you're dealing with only one manufacturer. Giving unit responsibility to one manufacturer assures you of getting a completely co-ordinated engineering job . . . and getting shipment dovetailed to your building plans.

**To save time and get the most for your electrical dollar, call in your General Electric representative *early*. By considering your electrical requirements *while you are still in the planning stage*, you will wind up with co-ordinated architectural, mechanical and electrical plans that will assure less costly construction and a plant that will look better and stay modern longer. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.***

**MARK JULY 21-24 on your calendar . . .**

that's the date for the 20th annual meeting of the Federation of Sewage Works Associations and the 1947 conference of the American Waterworks Association in San Francisco. Plan to attend and be sure to visit the General Electric exhibit where Cabinetrol and other G-E products will be available for your inspection.

GENERAL ELECTRIC

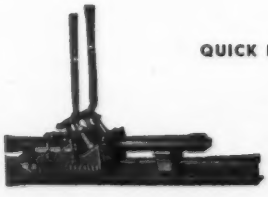



Cut costs, save time on underground pipe installations. With a GREENLEE Hydraulic Pipe Pusher *one man* can push pipe through the ground *easily, quickly*—under obstructions!

Save the time, work and inconvenience to all caused by the old methods of tearing up floors, lawns and pavement. Eliminate tedious back-filling, tamping, tunneling, re-paving (just a short trench accommodates the pusher.)

Save with the GREENLEE, which often pays for itself on the first few jobs used. Learn all about this compact, portable, powerful pipe installing equipment . . . get free Folder S-117. Greenlee Tool Co., Division of Greenlee Bros. & Co.. 2026 Columbia Avenue, Rockford, Illinois, U. S. A.

REGISTERED TOOLS
GREENLEE
FOR THE CRAFTSMAN



**QUICK FACTS ABOUT THE GREENLEE HYDRAULIC PIPE PUSHER**

*Easy*—one or two men can easily operate on any job. *Portable*—compact, easy to carry to job and set up. *Fast*—operates at six different speeds. *Two models*—(1) for pipe up to 4-inch; (2) for larger pipe, drainage ducts, concrete sewer pipe. Do the job easier, quicker with a GREENLEE.

# Check and Mail

**Use Coupon on Page 21**

## Tractor and Attachments Plow, Disc, Cultivate

**791** The Fulton Do-More tractor can be equipped to plow, disc, cultivate, cut weeds, mow lawns, push a snow plow, and grade dirt or roads. The power pulley runs at 1/5 of motor speed; engines are available with 2 or 3 hp. The usual combination outfit consists of a 6½-inch plow; a 21-inch sweep for lawn mowing; a universal hitch for all garden attachments; a 36-inch front cut sickle-mower with weed fender. For literature, write to the Fulton Mower and Mfg. Co., 2436-38 N. Grand Blvd., St. Louis, Mo.

## Rust Preventive

**792** Since corrosion of iron and steel is due to electro-chemical reactions, a chemical method was developed to counteract this action: No-Ox-Id, which is used for the preservation of water tanks and other types. The story, with examples, is told in *No-Ox-Id and Tanks*, a twenty-four-page illustrated booklet available from Dearborn Chemical Co., Chicago 4, Ill.

## Mud-Jack Saves Money In Street Maintenance

**793** The mud-jack drills small holes in pavement depressed by weakened subgrade and pumps cement-sand slurry under the surface, forming a substitute firm foundation. For information on this inexpensive method of street maintenance, write the Koehring Co., Milwaukee 10, Wis.

## Make Your Own Concrete Pipe

**794** Whether your organization favors the wet or semi-dry processes, tongue and groove, or bell-end pipe, Quinn heavy-duty pipe forms may be used in the hand manufacture of concrete pipe. Information, prices, and estimates will be sent on request by the Quinn Wire & Iron Works, 1623 12th St., Boone, Iowa.

## Interchangeable Stems and Couplings

**795** Chapman Standard sluice gates are constructed with interchangeable stems and couplings that require no match-marking and consequently eliminate installation problems. Types available are manual operation, hydraulic cylinder, or motor unit, delivered wired for installation. Write for *Sluice Gate Handbook* to The Chapman Valve Mfg. Co., Indian Orchard, Mass.

## Chemical Guide for Waste Treatment

**796** *Basic Chemicals for American Industry*, distributed by the General Chemical Co., 40 Rector St., New York 6, N. Y., will be valuable to municipal water and sewerage officials as a comprehensive guide to the company's products for the treatment of water and sewage wastes.

## Locate Underground Leaks

**797** The Geophone is a mechanism that locates underground leaks without requiring the investigator to excavate under pavement and lawns. Also available are pipe finders, dipping needles, and pipe phones. For additional information write to the Globe Phone Mfg. Corp., Dept., A, Reading, Mass.

## Ozone for Water Purification Eliminates Tastes, Odors

**798** Ozone, in the treatment of water supplies, eliminates objectionable tastes, odors, and colors. Because it introduces no foreign elements in the water, it is particularly effective with phenolic pollutions. For details of the Welsbach ozonator, write the Ozone Processes Div., The Welsbach Corp., 1500 Walnut St., Philadelphia 2, Pa.

(*Continued on Page* 28)

# Barber-Greene

## does the "*IMPOSSIBLE*" — automatically!

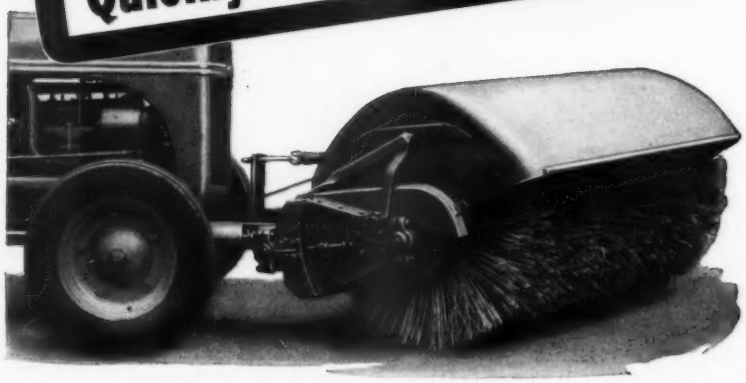
After you've watched any or all other finishers at work, see the B-G Tamping-Leveling Finisher! Alone among them all the B-G Finisher *automatically* measures the correct amount of compacted material and produces a level surface of uniform density—*a surface that is smooth and level, regardless of irregularities of the sub-grade.*

You might well have thought this an "impossible" job but it is only one of many features of B-G Finisher performance. It has a simple crown adjustment—places adjacent strips with no ridges at the joint. It handles any mix—hot or cold. Flexible, maneuverable and economical to operate, it offers outstanding performance from every standpoint.

BARBER-GREENE COMPANY • AURORA, ILLINOIS

*Constant Flow Equipment*

Remove RUBBISH and SNOW
from Your Streets, Alleys and Walks
Quickly-Easily-at Low Cost



# LITTLE GIANT POWER SWEEPER

**If you find hand sweeping and snow shoveling too costly—and slow, but your budget does not permit extensive expenditures for mechanical equipment, then the Little Giant Sweeper will meet your requirements.**

## For All Tractors, Jeeps

**Little Giant Sweeper mounts on all tractors and Jeeps, normally requiring less than 90 minutes to attach. Operates from power take-off. Brush sets at 30 degree angle. Sweeps to right side of tractor, outside of wheel path. Sweeps against forward motion of tractor for increased efficiency. Dependable chain drive—all moving parts are shielded for operator's protection.**

## Long-Wearing Brush—Dust Hood

**Brush lengths of 5, 6, 7, 8 and 9 feet can be furnished. The 5-foot length is recommended for sidewalk snow sweeping. Long-wearing Palmyra fibre brush, refillable at nominal cost. Adjustable ground pressure—brush can be quickly set to fit all sweeping conditions. Dust hood helps keep tractor clean—assures clear vision for operator. Hood can be removed in 15 minutes for sweeping snow.**

**Little Giant gets the sweeping job done faster. It quickly pays for itself in labor saved. The initial investment is low—very little upkeep expense. Can be used year-round—for snow in the winter and rubbish the rest of the year.**

**Designed by experts with years of experience in the sweeping field. Widely used by municipalities, airports, road contractors and industrial concerns.**

**We are in production and can make prompt delivery. Let us send you complete information and prices. Write**

LITTLE GIANT
PRODUCTS, INC.
1585 N. ADAMS ST.,
PEORIA 3, ILLINOIS


# Check and Mail

**Use Coupon on Page 21**

## Lay Pipe Without Excavating

**799** The Greenlee hydraulic pipe pusher has been found particularly useful in laying pipe under busy traffic-laden streets, since the use of this mechanism eliminates the necessity of tearing up streets and digging trenches. For details of construction and operation, write the Greenlee Tool Co., Div. of Greenlee Bros. & Co., 2024 Columbia Ave., Rockford, Ill. for free folders.

## One-Man Unit Kills Insects

**800** Tifa, a insecticidal fog applicator, is powered by a standard gasoline engine and can be used with any type of insecticide or fungicide on garbage- or fill-dumps, beaches, and in parks. For details of construction and operation, write to the Combustion Equipment Div., Todd Shipyards Corp., 81-16 45th Ave., Elmhurst, Queens, N. Y.

## Pipe Leakage Eliminated By Special Joint

**801** The Doublex Simplex joint permits liberal deflection and longitudinal expansion and contraction in pipe lines without leakage. Pipe sizes from 3 inches to 48 inches are available for conveying water or gases under high, medium, or low pressures. For details, write the American Cast Iron Pipe Co., Birmingham 2, Ala.

## Condensation Return Units

**802** The Aurora Pump Co., 66 Loucks St., Aurora, Ill., will send you upon request its condensed Catalog M, containing information about the various types of centrifugal pumps with capacities up to 150 gpm. APCO horizontal condensation return units are available in simplex and duplex designs in sizes from 2,000 to 100,000 square feet equivalent radiation.

## Concrete Breaker Also Tamps

**803** The Rapid Pavement Breaker machines, with pneumatic-controlled blow averaging 55 per minute, breaks concrete and also tamps backfill. Included in the line of machines is a Junior Model T, which can be added to a truck-mounted compressor. For details, write R. P. B. Corp., 1517 Santa Fe Ave., Los Angeles 21, Calif.

## A Portable Jet Pump

**804** Bulletin #315 on portable Derbyshire jet pumps tells how this line of pumps, utilizing water under pressure as the pumping medium, can remove or transfer water, heavy sludges, mud, or waste corrosive to conventional pumping equipment. Write to the Jet Pump Division, Derbyshire Machine & Tool Co., 5256 Belfield Ave., Philadelphia 44, Pa. The booklet will be sent without charge.

## End-Discharge Mixer

**805** The Kwik-Mix bituminous mixer features discharge of mixed material from the end of the mixer, making possible direct pouring from the mixer into the patch; non-tilting discharge, which speeds the discharge of the batch. Additional information may be obtained by writing to the Kwik-Mix Co., Port Washington, Wis.

## Pumps from 40 to 16,000 GPM

**806** Layne & Bowler, Inc., Memphis 8, Tenn., will send you information on its line of pumps which can be used for wells, lakes, rivers, reservoirs, and irrigation projects. From 40 to 16,000 gpm, the pumps are powered by electric motor, V-belt, or angle gear drives.

## Highway Crossing Signals

**807** One of the most important traffic signals is that at the highway-railroad crossing. Bulletin G-156-AC, issued by the Western Railroad Supply Co., 2406-2436 South Ashland Ave., Chicago 8, Ill., describes in detail the company's Model 10 signal, which is completely automatic.

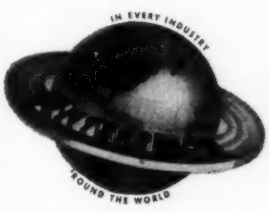
AT STRATEGIC LOCATIONS FOR YOUR CONVENIENCE

# ENTERPRISE

## NATION-WIDE SERVICE

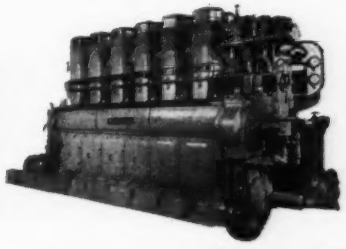
Parts and service for Enterprise Diesel Engines are supplied by one of the most complete organizations in the Diesel Industry. Enterprise Representatives are located not only at these key points throughout the nation but are also international in scope, offering uniform Enterprise service throughout the world. In addition, a thoroughly trained staff of experienced engineers is at all times available for consultation. This immediate, expert service means lower maintenance cost and greater dependability. When you select Enterprise, these services become yours, as a vital part of your diesel application. We invite you to investigate the advantages of Enterprise Diesel Engines and Enterprise Service.

STATIONARY AND MARINE




# DIESEL ENGINES

**ENTERPRISE ENGINE & FOUNDRY CO.**
18TH AND FLORIDA STREETS
SAN FRANCISCO 10, CALIFORNIA



DIESEL ENGINES • PROCESS MACHINERY • OIL BURNERS • HEAVY MACHINERY

*Mr. Mayor or City Manager:*

# DON'T GUESS—BE SURE

## IMPROVE SERVICE BY STRETCHING THE TAX $$

Very few cities and towns can afford to maintain research agencies or spare regular employees from day-to-day operating duties to devise new and better (and more economical) ways of serving their citizens, BUT they can afford to pay a modest subscription fee for expert advice when that fee amounts to a small fraction of the cost if carried on by each individual city.

*Now Available to All Cities and Towns on a Subscription Basis*

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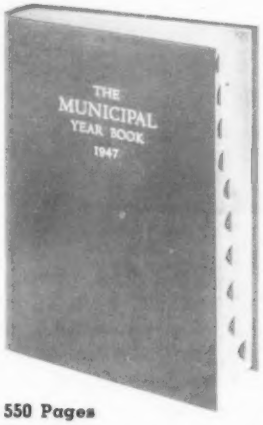


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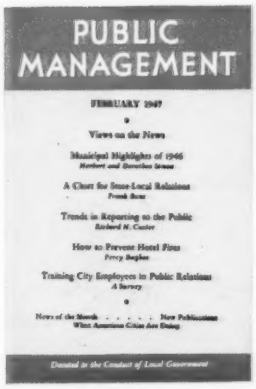
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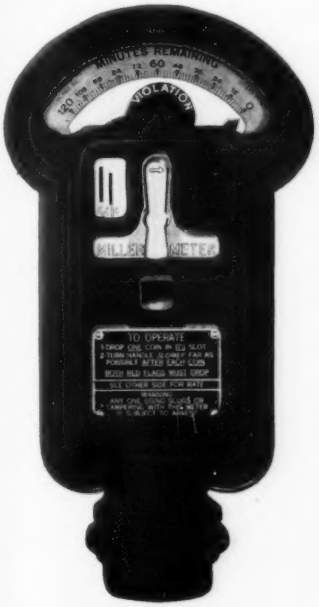


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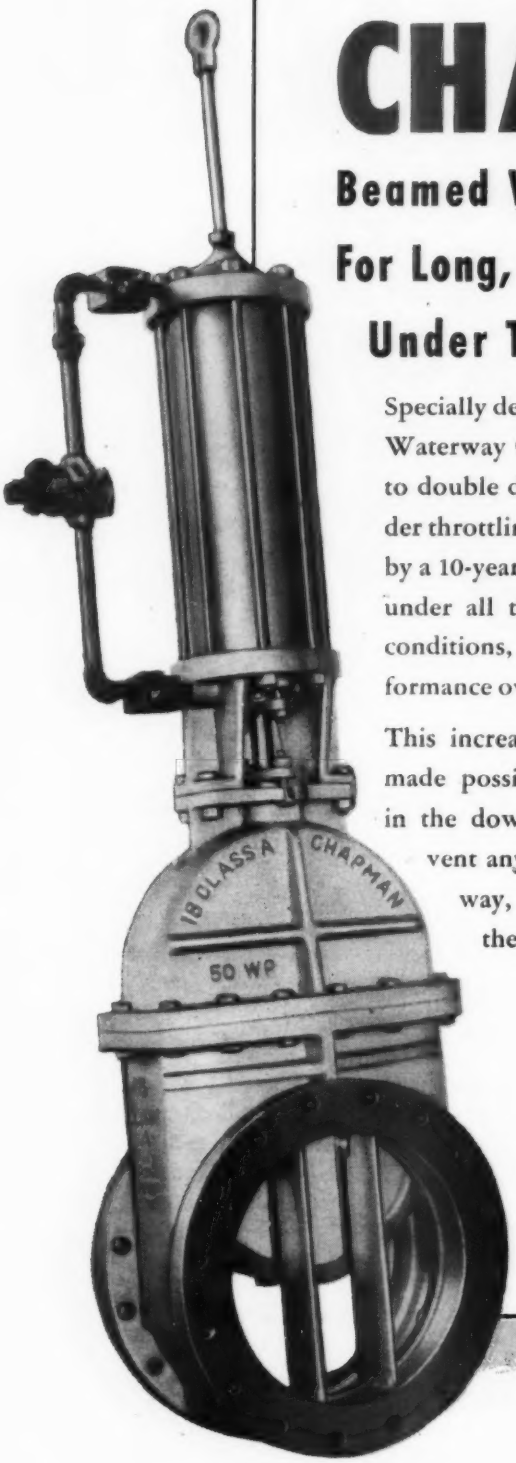


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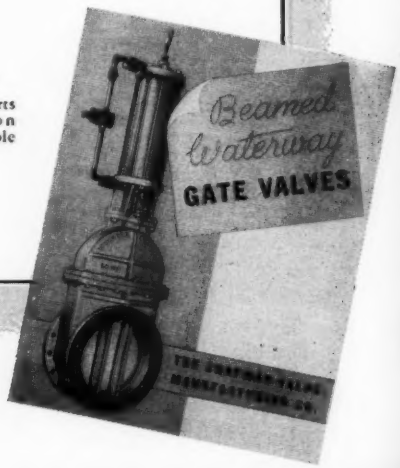


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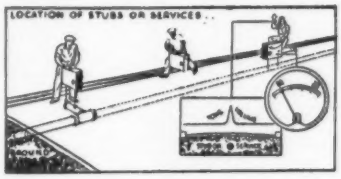

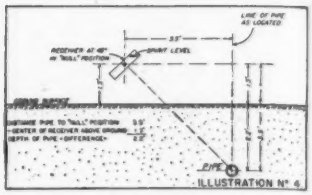


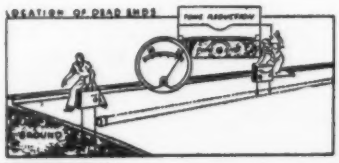


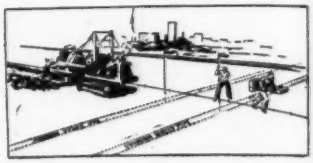

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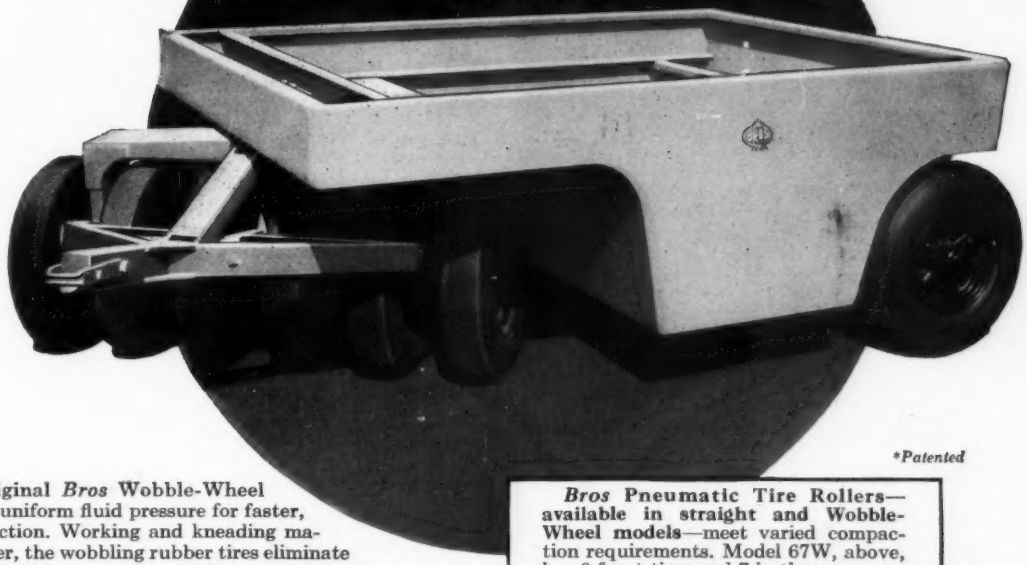
For Fluid Pressure Compaction



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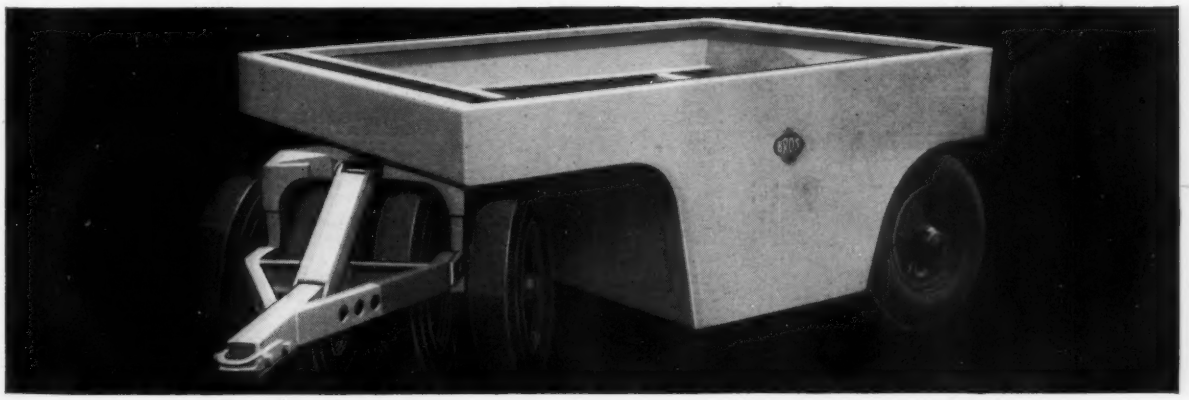

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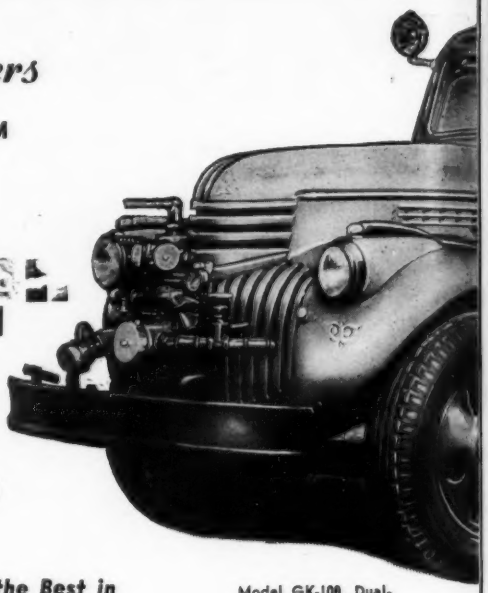

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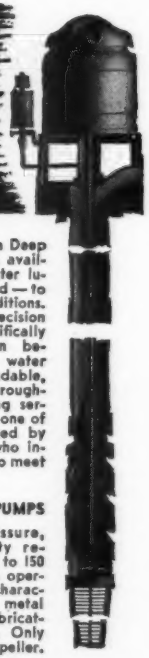

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SUMP
MIXED FLOW
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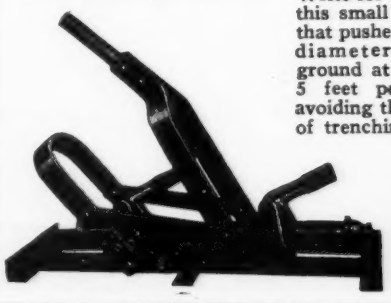

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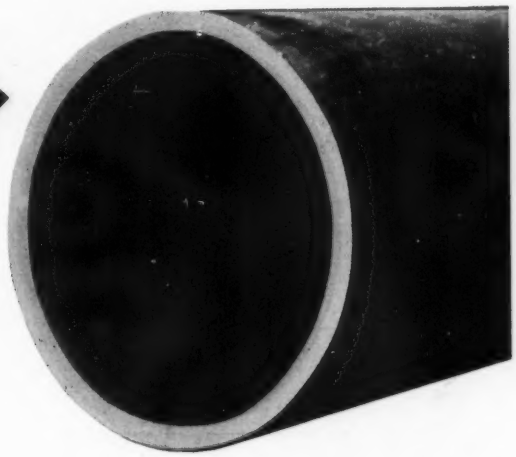
## from Mains reconditioned by

## PITTSBURGH ERIC PROCESS



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Restores fullest capacity by efficient, scientific pipe cleaning methods.

Corrosion resistant bitumen lining is applied to main while in place. Protects pipe interior from attack of aggressive and soft waters. Eliminates "red water" conditions. Prolongs useful life of main many years.

As much as 1,000 feet of pipe can be cleaned and lined at one time. Under normal conditions, the main can be restored to service the same day.

Unique method of coating application makes complete reconditioning programs economically available for all small water mains.

These are a few of the many reasons why a Pittsburgh-Eric Complete Pipe Reconditioning Program can save money for your community. Our nearest branch in your district will gladly supply the full details.

**PLANNED PIPE REHABILITATION PROGRAM INCLUDES GENERAL SURVEY:**

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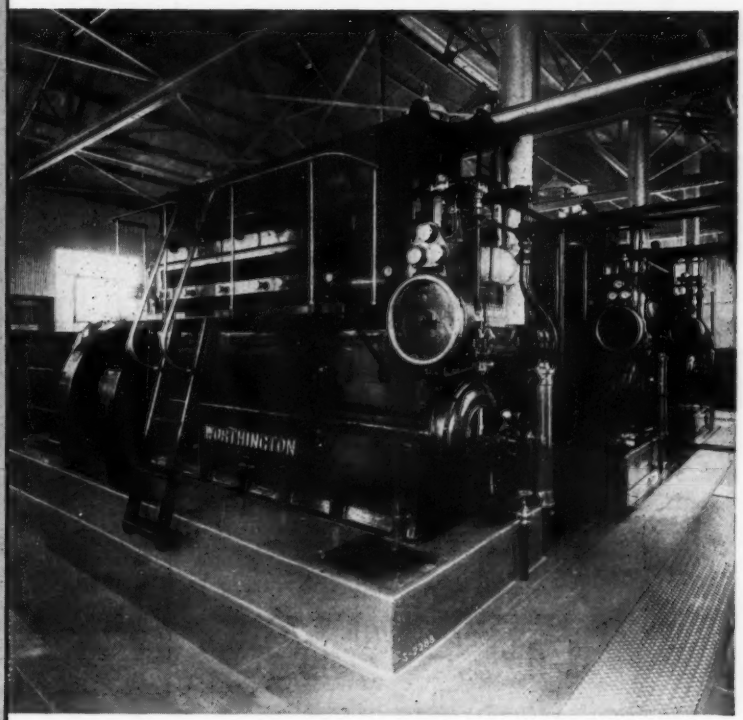
It must be obvious that this is vastly better pipe than cast iron pipe made by the rule-of-thumb methods of a century ago, even though most of that pipe is still in service.

**CAST IRON PIPE**
SERVES FOR CENTURIES
LOOK FOR THIS MARK IT IDENTIFIES CAST IRON PIPE

# BEFORE YOU BUY A
# DIESEL OR GAS ENGINE

## *Check These Worthington Features Approved by Power-Wise Purchasers*




Three Worthington CCG-6 Engines Serving The Continental Oil Co., Griffin, Indiana

✔ **Four-Cycle Design** . . . The sustained high economy and dependability of this design, as engineered by Worthington, have been proved beyond question.

✔ **Rugged Construction** . . . Rigid enbloc frame, large crankshaft, four-bolt main and connecting rod bearings and gear-driven camshaft assure extra-long service life.

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**Only Worthington Has ALL These Features!**

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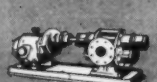
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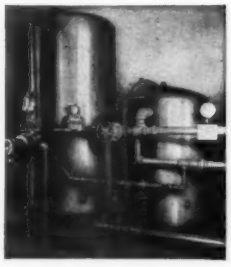
"And hundreds of other housewives could kiss him too! And why not? Members of this administration were on their toes when they brought municipal soft water to our town. They knew that soft water is the delight of everyone — from baby to grandpa.

"What's more, *and this is important*, our city water department is now on a 'paying basis.' I don't mind paying a few cents more for *soft* water because it saves many times its cost by reducing soap requirements, saving fabrics and eliminating damaging scale in plumbing.

"So, you see, we have the benefits of soft, iron-free water *in every home* — and the municipal equipment pays for itself. Pretty smart city government, Eh?"



Yes—consider the advantages of soft water for your community. Get *all the facts* today by writing, wiring, or phoning — no obligation of course.

**NEED SWIMMING POOL EQUIPMENT?**

Remember—Refinite supplies equipment for swimming pools, as well as laboratory analysis and swimming pool control services. Ask for free literature.

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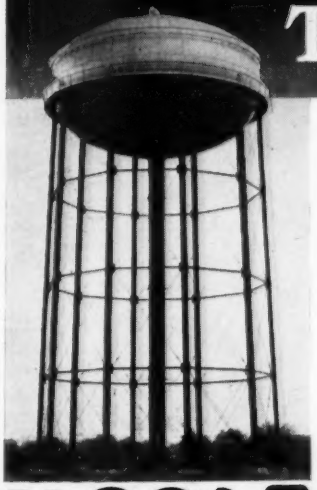

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Write for prices, stating capacity, height to bottom, and location.

**R.D. COLE MFG.CO.** ESTABLISHED 1854
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**PLAIN CAST OR SPUN CENTRIFUGAL**

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

*Size 2 to 84-inch*

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

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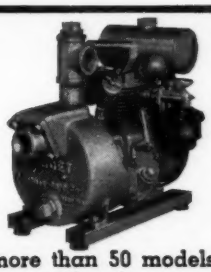
# NEW SANITARY CLEANER MEETS PUBLIC HEALTH STANDARDS

**THE MIDGET**



Smallest of more than 50 models of Gorman-Rupp centrifugal pumps, the Midget can do hundreds of handy pumping jobs. Small, compact – weighs only 60 pounds complete – easily handled by one man. Automatic self-primed – when the motor starts, the water starts. Streamlined interior can't clog. Pumps more water for its size than any other pump on the market.

Whatever size your pumping job may be, up to 125,000 gals. per hour, your best choice is Gorman-Rupp.

Gorman-Rupp Model 1602 (90M) pump, capacity 1,500 GPM at average total head.

## HERE'S A GOOD BUSINESS FOR SOMEONE IN YOUR TOWN!

*Public Health Officials - Show this Announcement to Sanitary Service Operators in Your Community!*

The New Odorless Sanitary Cleaner is modern apparatus for cleaning septic tanks, vaults and cisterns. It is complete in every respect. It is shipped ready to mount on standard truck chassis, 158 to 161 inches length. It is built by the Gorman-Rupp Company, a leader in the pump industry.

This O. S. C. unit is approved by public health officials because it eliminates old-style, makeshift equipment – often open tanks, diaphragm hand pumps and even shovels. With an O. S. C., cleaning the septic tank is as casual and efficient as any other household service.

The O. S. C. has a powerful Gorman-Rupp Centrifugal Sewage Pump of self-priming design. Septic tanks of 500 gallon size are cleaned in 15 minutes; 1,000 gallon size in 20 minutes. A 25,000 gallon septic tank was cleaned in just 10 hours.

It's water-tight, fly-proof and entirely enclosed. A boon to operators now in business. A real opportunity for the veteran wanting his own business. Buy an O. S. C. unit under the G. I. Bill of Rights.

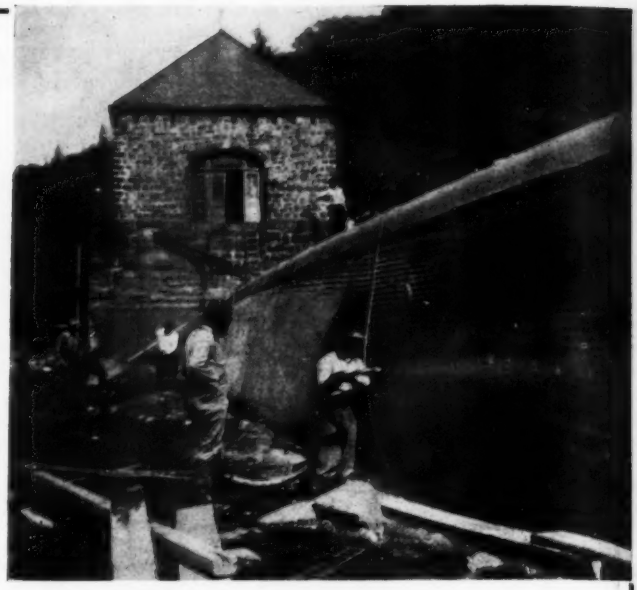
For further information and descriptive literature write

**THE GORMAN-RUPP COMPANY**

GORMAN-RUPP PUMPS — UNSURPASSED FOR PUMPING FAST

**343 N. Bowman St., Mansfield, Ohio**

# "GUNITE"
## *repairs*
## *Masonry Dam*



This stone masonry dam, property of an eastern water company, was badly in need of repair. A three-inch facing of reinforced "GUNITE" was installed and resulted in a completely waterproof structure. The finished job has stopped the extensive leakage and the new surface is resistant to further disintegration.

Maintenance costs have been sharply reduced and years of service have been added to the life of this dam. Our engineers will gladly make inspections and give estimates on the cost of repair to structures under your supervision. No obligation, of course.

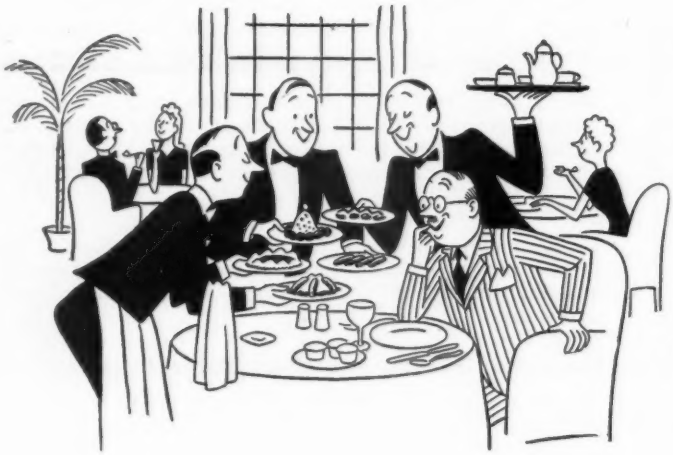
Is your present problem a reservoir, tanks and filters, or coagulating and settling basins? Write for an interesting folder showing how "GUNITE" can solve your water supply repair problems.

6 AVENUE B
NEWARK, N. J.

**PRESSURE CONCRETE COMPANY**
ENGINEERS AND CONSTRUCTORS

SOUTH COURT ST.
FLORENCE, ALABAMA

## Eenie . . . . meenie . . . . minie . . . . mo . . . .



IT DOESN'T matter which dish you select at a Statler Hotel. They're *all* delicious!

In addition to superb food, you'll find large, oh-so-comfortable rooms . . . efficient, friendly service . . . the sincere warmth of Statler hospitality.

***At moderate rates.***

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This

COMPOUND METER

Made Only By

LYSHOLM

# "Give Me GMC ARMY WORKHORSE POWER"

*Writes War Veteran Grant Sims*

Here's a fellow who really knows truck engines. Official of an important motor freight line before the war, he spent 35 months overseas in command of a GMC-equipped mobile aircraft salvage unit. Today he is Superintendent of Maintenance for the Salt Lake Transfer Company.

"Those GMC military trucks with the '270' engine never let us down," Sims declares, "and I can say the same for the GMC commercial models we're using today. We have some pretty tough hauling in the inter-mountain region and the records show that GMC engines are most economical and reliable, requiring minimum maintenance."

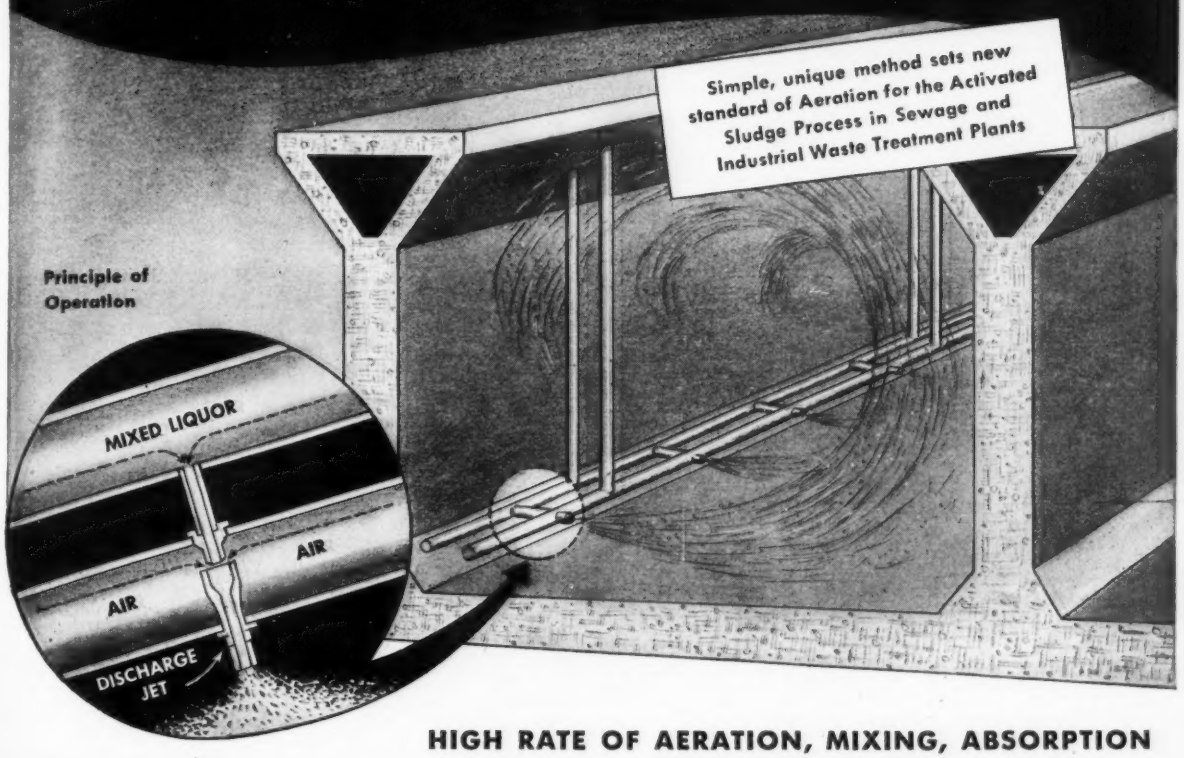
Wherever your hauling job, you can benefit by GMC's outstanding Service record. For every commercial model . . . light, medium or heavy duty . . . has an engine of the same basic design as the war-famed GMC "Army Workhorse."

**GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION**

*THE TRUCK OF VALUE*

**GASOLINE • DIESEL**

# 5 Times more Oxygen Absorption AT LESS COST... with American Jet Aeration


Simple, unique method sets new standard of Aeration for the Activated Sludge Process in Sewage and Industrial Waste Treatment Plants
Principle of Operation
MIXED LIQUOR
AIR
AIR
DISCHARGE JET

## HIGH RATE OF AERATION, MIXING, ABSORPTION

This original type of aerating process combines mixed liquor with air, under jet pressure, by an exclusive method that produces an unprecedented high rate of oxygen absorption.

Pumped into a header at a pressure of 15 to 25 lbs. per square inch, the mixed liquor jets through an air header, entraining compressed air. The force of this homogeneous jet of finely divided air and liquor, *traveling in the same direction,* creates a mixing motion which insures intimate contact between activated sludge floc, the widely dispersed particles of air, and organic matter in the tank contents.

This provides an ideal condition for a high rate of oxygen absorption. *No other method of aeration achieves this condition as completely or at the same low cost.*

In actual installations of this type of jet aeration, oxygen absorption has been measured at 20 per cent, or five times more than with the usual diffusion plates or tubes.

*Write for full information on the application of American Jet Aeration to your special conditions.*

Licensed by The Dow Chemical Company

**In addition to higher oxygen absorption, you get THESE FEATURES:**

- No clogging—No cleaning
- No accumulative back pressure on blowers
- Lower power consumption
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- No air filters or liquid strainers
- Greater flexibility of application and operation

Additional aeration readily provided for existing plants. Present diffuser plate or tube installations easily modified for Jet Aeration.

*Our staff of Sanitary Engineers will cooperate with consulting and operating engineers in suggesting the process of treatment and type of equipment best suited to individual needs.*

# AMERICAN WELL WORKS

IN OUR 79TH YEAR
100 North Broadway
AURORA, ILLINOIS

Pumping, Sewage Treatment, and Water Purification Equipment
RESEARCH • ENGINEERING • MANUFACTURING

Offices: Chicago • New York • Cleveland • Cincinnati • Kansas City • Sales Representatives throughout the World

*Transferring control points from a contact print to a logarithmic template to be used in constructing a slotted template network.*

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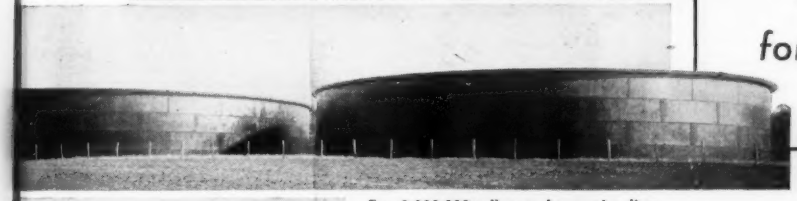
PITTSBURGH • DES MOINES

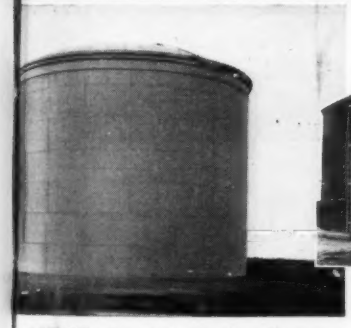
# Steel Reservoirs

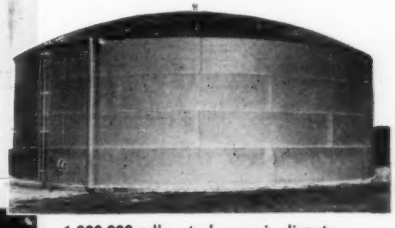
,200,000-gallon
teel reservoir,
ith ellipsoidal
oof and orna-
ental pilasters.
Diameter 80',
eight to roof 51'.
Midland, Tex.

## STRONG • PERMANENT
## LOW IN COST....
*for economical water storage!*



Two 3,000,000-gallon steel reservoirs, diameter 144', height 25'. Berryville, Va.





1,000,000-gallon steel reservoir, diameter 84'3", height 24'10". Bottineau, N.D.

1,500,000-gallon steel reservoir, with ornamental cornice. Capitol Heights, Md.

Steel—with its strength, permanence and low maintenance—offers the best service and greatest overall economy in water reservoir construction.

Steel Reservoirs by Pittsburgh-Des Moines provide these advantages fully—plus the design engineering experience, modern fabrication, expert erection and guaranteed satisfaction typical of this responsible organization. *Write for a quotation on your projected reservoir requirements, of any type or size!*

,000-gallon steel reservoir, ellipsoidal roof; eter 48', height 25'. Fort Benton, Mont.

Two 100,000-gallon steel reservoirs, cone roof; diameter 30', height 21'. Atlantic, Iowa

**PITTSBURGH • DES MOINES STEEL CO**

Pittsburgh, Pa., 3412 Neville Island—Des Moines, Iowa, 913 Tuttle Street

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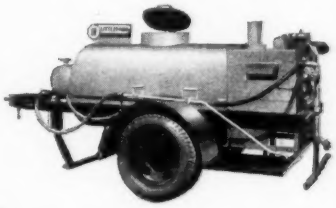
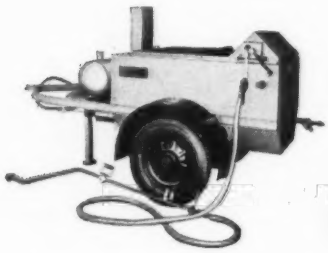
## A Patch in Time Saves Nine . . .

## USE LITTLEFORD FOR ROAD REPAIRS

Holes in black top are as inevitable as winter, and the best and cheapest way is to get on them quickly with the finest repair equipment anywhere available — Littleford. Put Littleford's Trail-O-Roller on patch work and the holes will soon disappear. For this compact little number is motorized and portable, converts from rolling to traveling, or back, in two minutes; trails as fast as you drive a truck; compaction as great as five ton tandem! *There's* efficiency! Combine that with Littleford heating Kettle and 101 Utility Spray Tank, and you're ready for the toughest road job that winter can throw at anybody!



Littleford 101 Utility Spray Tank is combination of three units: Spray bar for spraying, hand spray for patch work, pouring pot outlet for filling cracks.



Littleford 84-HD is fastest heating kettle made; double heat circulation and screened reservoir. These patented features give fast, efficient, economical operation.

LITTLEFORD

LITTLEFORD BROS., Inc.

500 E. PEARL ST., CINCINNATI 2, OHIO

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## Street Flushers
"THE MACHINE OF A DOZEN USES"

**KEEP STREETS CLEAN AND COOL**

Flush germ-infested dirt off streets, keep them cool and healthful with an Etnyre Sanitary Street Flusher. Powerful, high-pressure streams of water clean streets up to 42 feet wide in one trip even under parked cars, reducing bacterial count and disease hazard, cooling pavements, laying dust, leaving streets clean, cool and healthy. See your Etnyre dealer or write us today for complete details.

**E. D. ETNYRE & CO., Oregon, Illinois**

# *The "Quinn Standard"*
## FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 30 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms and Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

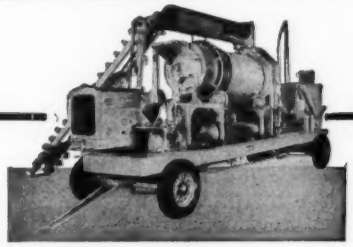
**Quinn Heavy Duty Pipe Forms**

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for any diameter pipe from 12 to 34 inches—tongue and groove or bell end pipe—any length.

**WRITE TODAY**

Complete information, prices and estimates sent on request. Also manufacturers of Quinn Concrete Pipe Machines.

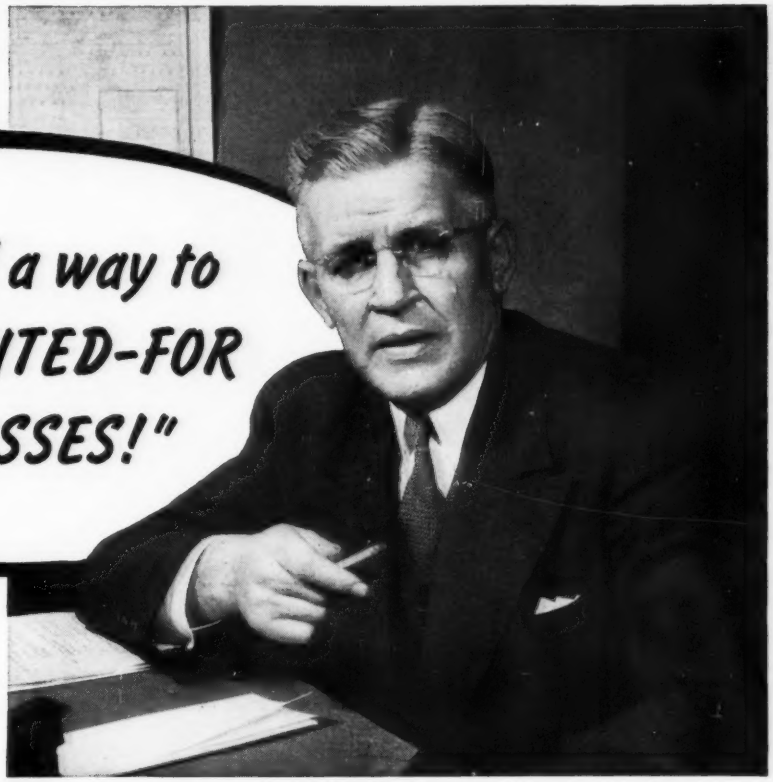
**QUINN WIRE & IRON WORKS 1623 12th ST. BOONE, IA.**



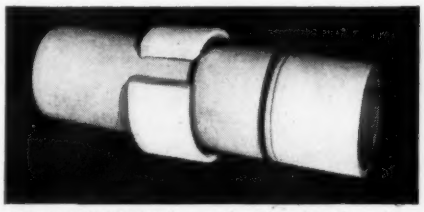
**PORTABLE ASPHALT PLANTS**

*Write for Catalog*

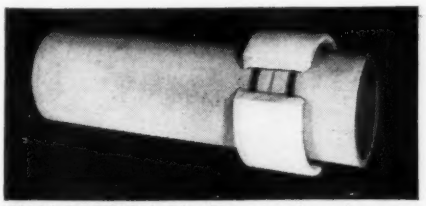
Elkhart **White Mfg. Co.** Indiana




# Water Works men find Transite's Simplex Couplings guard against joint leakage.



**CUTAWAY VIEW** shows the Simplex Coupling at start of assembly. Note the position of the Transite sleeve and two rubber rings.



**FINAL POSITION.** The Transite sleeve has now been pulled over the ends of the pipe, rolling and compressing the rubber rings tightly into position.

"Water pumped but not paid for" is a hidden item in the books of many municipal water departments. A considerable part of this loss can often be traced to underground leakage—a loss which Transite Pipe has helped to reduce in hundreds of cities and towns.

An important reason for this is Transite's Simplex Coupling. Engineered to combine tightness with an unusual degree of flexibility, this coupling cushions the line against vibration, helps compensate for soil movement and earth stresses. Thus, it provides an effective safeguard against leakage at the joints.

Moreover, the Simplex Coupling is, in effect, a factory-made joint which is simply *assembled* on the job. Perfect joints are quickly, easily made, even by inexperienced crews. And each joint can be checked for proper assembly as the pipe is laid—additional insurance against joint troubles due to faulty workmanship in the trench.

Let us send you more information about the many advantages of Transite Pipe. Just write Johns-Manville, Box 290, New York 16, N. Y., and ask for the Transite Pressure Pipe brochure.

JOHNS-MANVILLE JM PRODUCTS

**Johns-Manville**

**Transite Pressure Pipe**

**An Asbestos Product**



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*for Water Softening*

. . . SOLVAY SODA ASH

TRADE MARK REG. U. S. PAT. OFF.

*for Water Purification*

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*for Water Technical Service*

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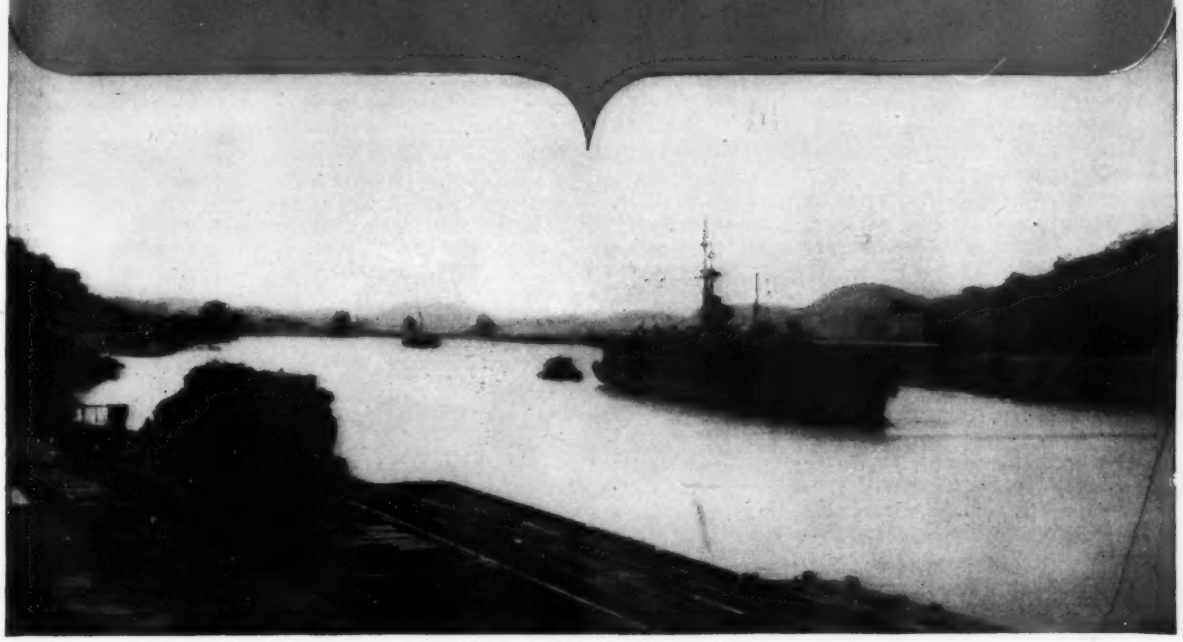
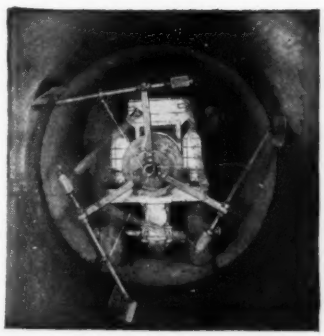
. . . . . UNCLE SAM

# CENTRILINES

## AT THE CANAL



. . . **CENTRILINE** has recently reconditioned for the Government, the 58,000 feet of 30 and 36 inch cast-iron pipe line from Gamboa Pumping Station to Miraflores, Panama Canal Zone. The increased carrying capacity will now be permanently maintained by the thin, dense, smooth cement mortar lining centrifugally applied—a reliable guarantee against future tuberculation, underlying deterioration of metal and increased pumping costs.



*The Centriline process is a rapid, economical method of reconditioning pipe lines 24" and larger. After cleaning, a thoroughly premixed cement mortar lining of desired thickness is applied centrifugally without rebound. This dense quality product is mechanically trowelled to a smooth finish providing maximum carrying capacity which is permanently sustained. This work is performed underground, in place.*

CENTRILINE PROCESS

**CENTRILINE CORPORATION**

**140 CEDAR STREET • NEW YORK 6, N. Y.**

***Restores and Protects Pipe-Line Carrying Capacity***

**THE MARK OF SUPERIORITY**
**IN MODERN BUSINESS MACHINES**

Bookkeeping Machines

Adding Machines

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Calculators

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# Control!

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**You can control the cost of the damage to your hydrants that are damaged in traffic accidents if they are MUELLER-COLUMBIAN because the SAFETY FLANGE takes the shock when it is hit a sufficient blow to cause damage. There is no loss of water, one man can install a new SAFETY-FLANGE section in a few hours time, and the cost for parts is less than $8.00.**

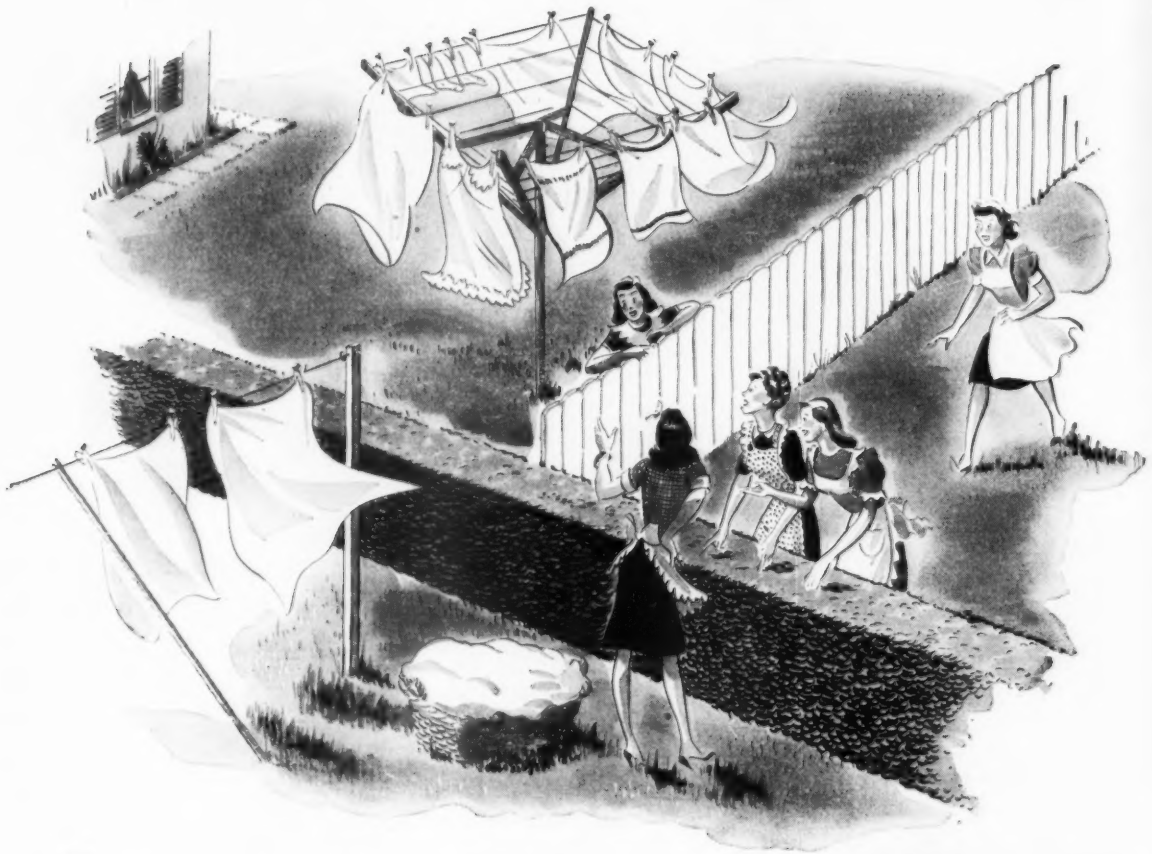
**Simple way to control costs, isn't it?**

DEPENDABLE SINCE 1857 FULLY WARRANTED
OUR 90th YEAR

## MUELLER CO.

FACTORY: *Chattanooga, Tenn.* MAIN OFFICE AND FACTORY: *Decatur, Ill.*
OTHER FACTORIES: *Los Angeles, Cal.* * * * * *Sarnia, Ont. Canada*

# THE WHOLE TOWN'S TALKING!

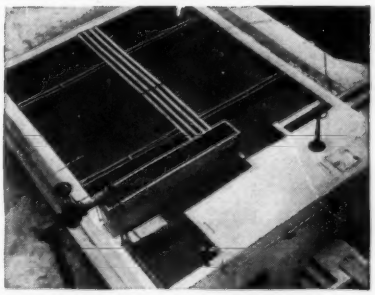


Every housewife in town is bursting with the exciting news of snow-white washes, with less effort, less soap. The reason? Their city management has installed modern, efficient Permutit* Water Conditioning equipment. It's the biggest thing that has happened in years.

From now on, municipal water will be clear...soft...iron-free! And good water does more than end household drudgery; it benefits everyone in town—shops, restaurants, and industry!

If your community has a hard-water problem—and the chances are it has—why not let the engineers of America's most experienced water-conditioning company solve it for you. Write today to The Permutit Company, Dept. A-6, 330 West 42nd St., New York 18, N. Y., or Permutit Company of Canada, Ltd., Montreal.

*Trademark Reg. U.S. Pat. Off.



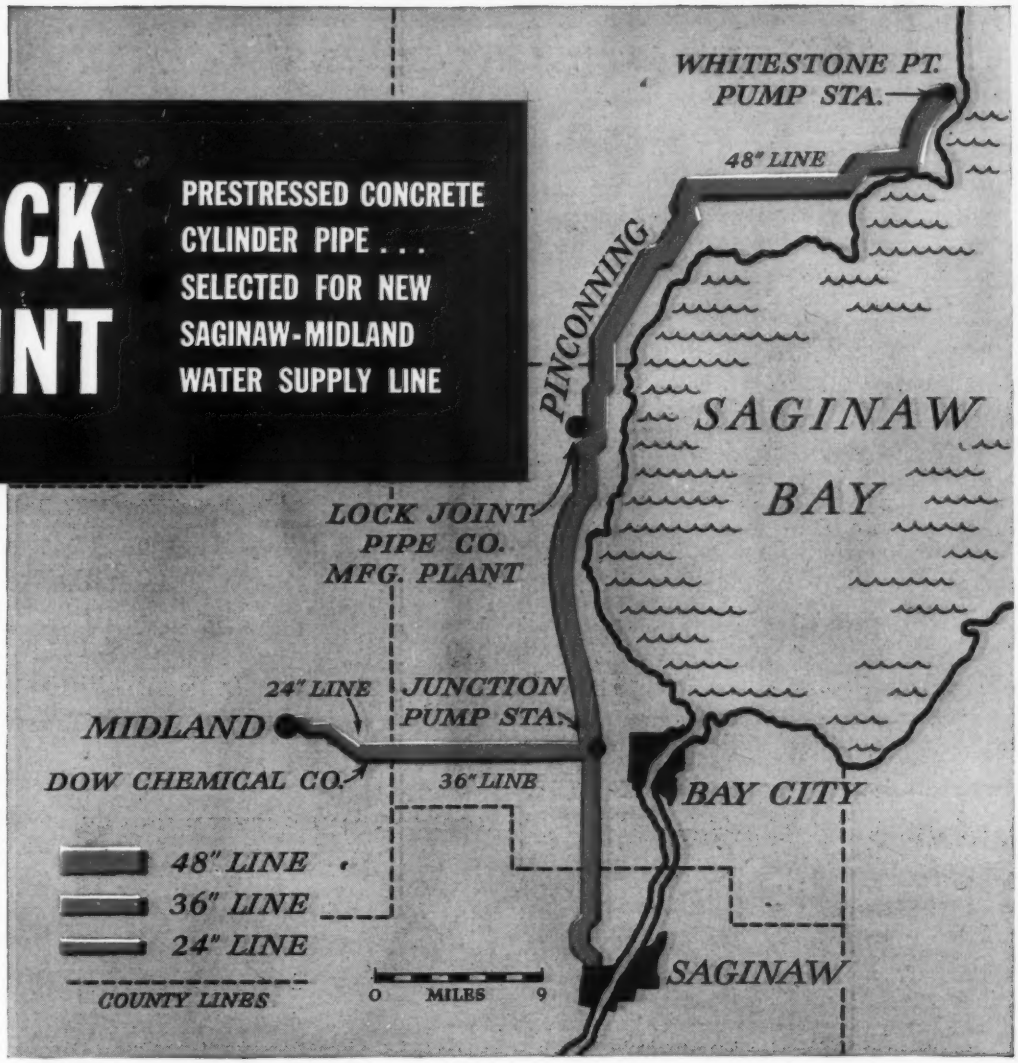
**PERMUTIT SPAULDING PRECIPITATOR** ... removes water hardness, dirt, and color by the sludge blanket process. This modern equipment cuts detention time, saves chemicals, takes only half the space of former methods. This is only one of many Permutit methods of treating municipal water supplies.

# PERMUTIT

WATER CONDITIONING HEADQUARTERS

# LOCK JOINT

PRESTRESSED CONCRETE CYLINDER PIPE . . . SELECTED FOR NEW SAGINAW-MIDLAND WATER SUPPLY LINE




**ONCE AGAIN,** Lock Joint Prestressed Concrete Cylinder Pipe has been selected for a major water works project.

**SPECIFICATIONS** issued by the Saginaw-Midland Water Supply Commission call for the manufacture and installation of 254,500 feet of 48 inch pipe . . . 143,230 feet of 36 inch pipe . . . 14,900 feet of 24 inch pipe . . . all operating at a pressure of 130 pounds.

**WHEN COMPLETED,** this 78 mile water supply line will be capable of delivering 23 MGD to the city of Saginaw and 20 MGD to Midland.

**BY SELECTING** Lock Joint Prestressed Concrete Cylinder Pipe, the Saginaw-Midland Water Supply Commission assures itself of a pipe line of maximum elasticity, permanent high carrying capacity and an estimated life of one hundred years or more.

## LOCK JOINT PIPE COMPANY

Established 1905

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Denver, Colo. • Chicago, Ill. • Kenilworth, N. J. • Kansas City, Mo. • Rock Island, Ill. Joplin, Mo. • Valley Park, Mo. • Cleveland, Ohio • Hartford, Conn. • Navarre, Ohio

**SCOPE OF SERVICES** Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.

LOCK JOINT *Reinforced Concrete* PRESSURE PIPE



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## For County and City Figure Efficiency!

* One machine produces all the necessary administrative reports and control forms needed.

Cities and counties throughout the nation use Remington Rand bookkeeping machines for:

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| Budget Accounting | Tax Abstracts |
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| | Utility Billing |

*and dozens of other applications!*

BRANCHES EVERYWHERE!

Whether it's tax records, budgets, allotments or any other accounting procedure, Remington Rand Bookkeeping machines prepare your vital records more easily, more quickly, more efficiently.

Your gas, water and electric billing may require three or four related forms. Payrolls may need journal, employee's record, statement of earnings, checks. Budget accounting may necessitate forms for director, department head, administrator and comptroller.

One Remington Rand Bookkeeping Machine posts the necessary two, three, four or more forms simultaneously!

Investigate these outstanding features for increasing administrative action. Call a Remington Rand Representative immediately—or write Adding-Bookkeeping-Calculating Machines Division, Department AC, 315 Fourth Avenue, N. Y. 10.

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Machines for Government Administration

# 20 new WARD LA FRANCE pumpers for NEW YORK CITY

Ward LaFrance is proud of the 20 new pumpers bearing their name that have just been added to the fire fighting equipment of the world's largest city. This brings the total of Ward La France fire apparatus in New York City to 66 units.

Increased capacity at the two Elmira, N. Y. plants of Ward LaFrance has been made possible by a modernization program which included 6 completely new buildings equipped with the latest machinery for the manufacturing of fire apparatus.

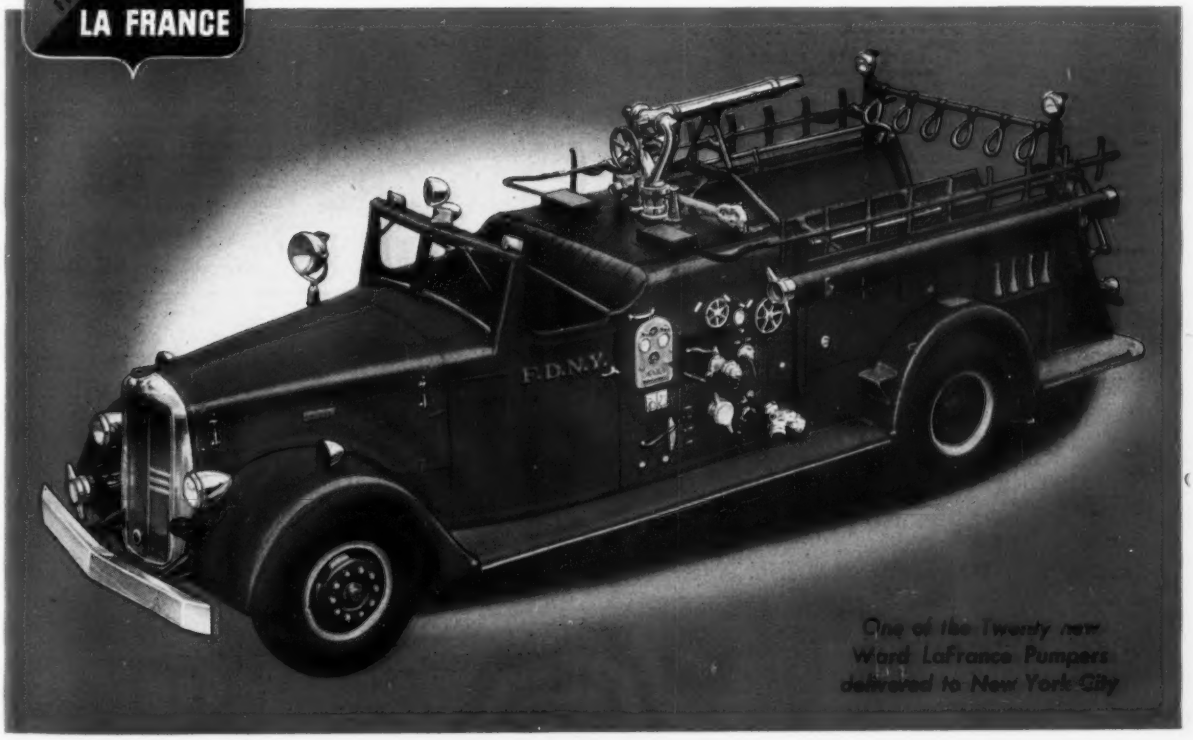
The deliveries of materials used in the manufacture of fire apparatus have not kept pace with the improved facilities at Ward LaFrance. In spite of these shortages, deliveries are showing a steady growth and, with a reasonable increase from our suppliers, prompt deliveries will be assured.

These enlarged and improved facilities place Ward LaFrance in a position to make deliveries unexcelled by any other producer during 1947, and the years following. That is why we say, *"Consider Ward LaFrance first."*

**WARD LA FRANCE TRUCK DIVISION**

**Great American Industries, Inc.**

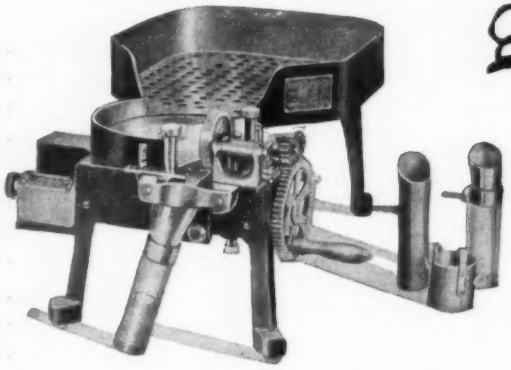
**ELMIRA, NEW YORK**




*One of the Twenty new Ward LaFrance Pumpers delivered to New York City*

# *Attention:* PARKING METER CITIES

**We have sold many Abbott Coin Counting Machines to municipalities for counting and wrapping money taken in from parking meters. DELIVERY IN TWO WEEKS.**



*Write us for catalog of bank and cashiering supplies together with larger and smaller coin counting machines.*

**MODEL No. 4ET—(Electric)**

A large motor-driven machine with an unusual reputation for speed and durability. Will handle all coins. Automatically locks after each count of 20, 25, 30, 40 or 50 coins or will count indefinitely into a bag. Register can be reset to zero.

**MODEL No. 2X—(Hand Operated)**

Adjustable for pennies, nickels, dimes, quarters or halves. Can be set to lock automatically when 20, 25, 30, 40 or 50 coins have been counted or will count indefinitely into a bag. An operator can count and package 400 coins a minute or count 2,000 coins into a bag. Register can be reset to zero.

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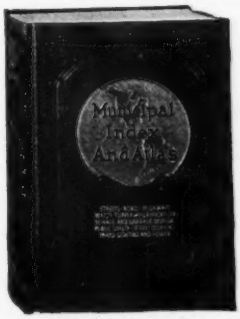


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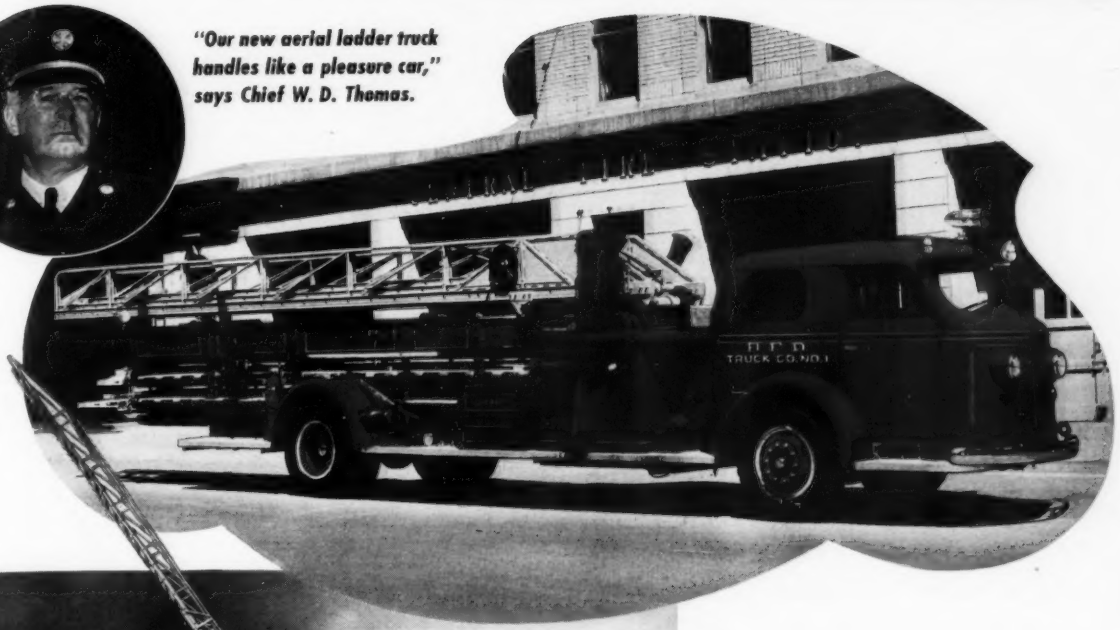


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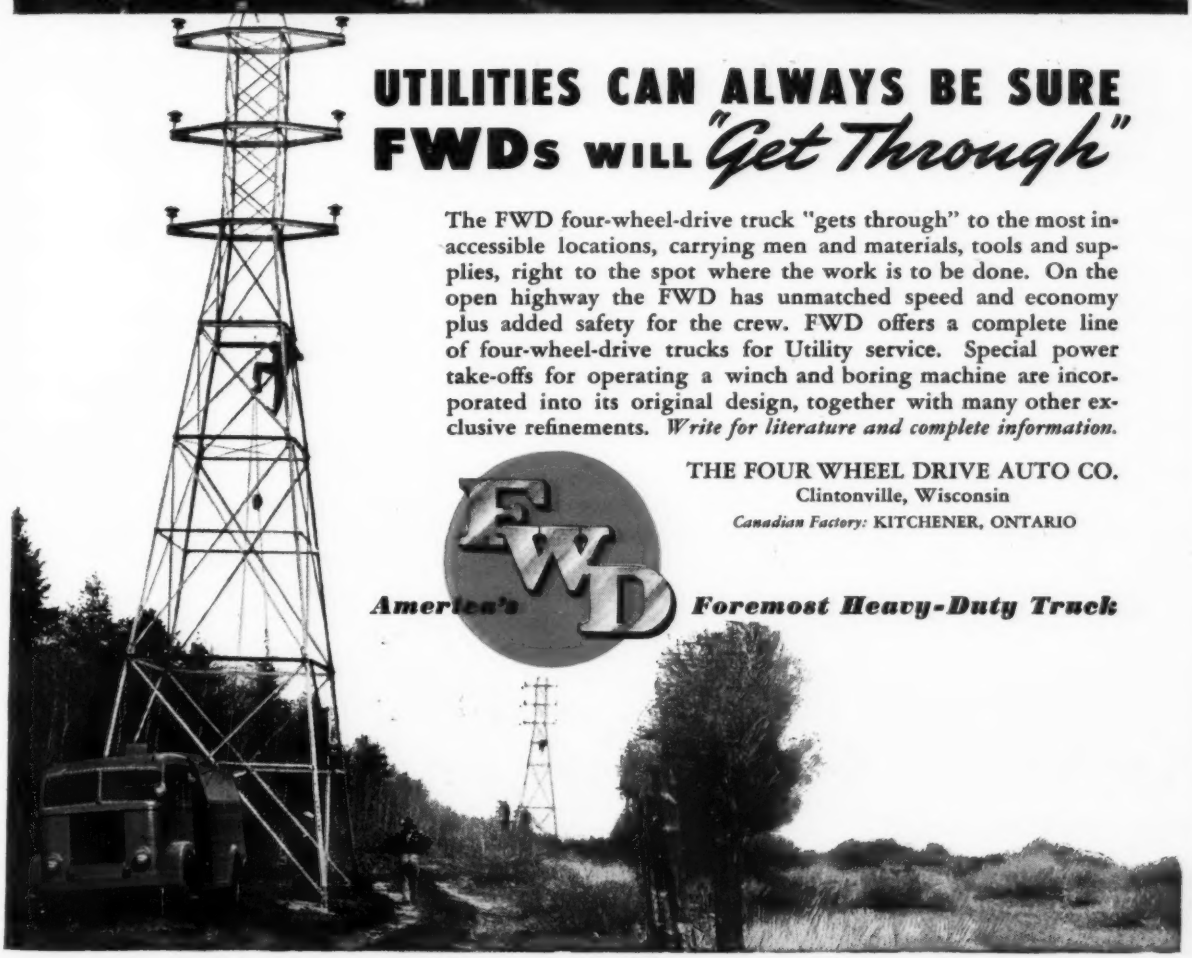

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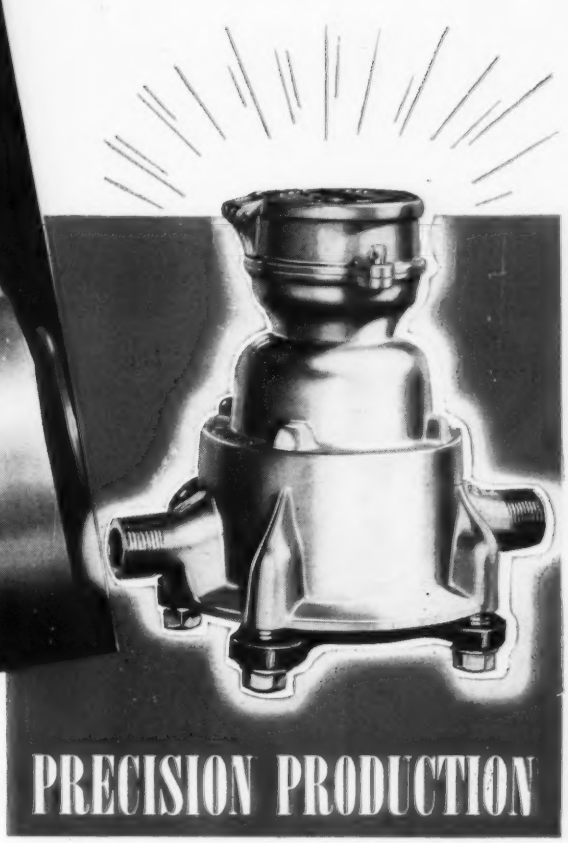

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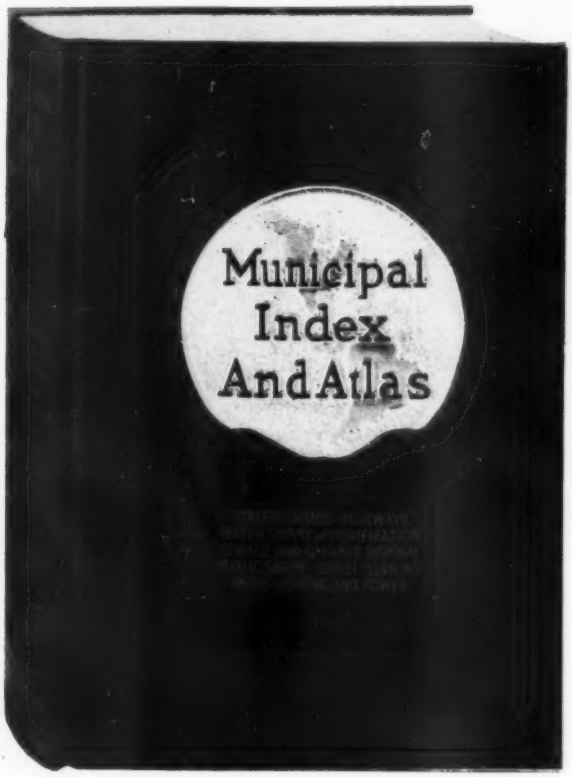
# INTERNATIONAL *Trucks*

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We recently asked that question of 2,000 city officials and consulting engineers. The responses received show up percentage-wise as follows.

| | *City Officials* | *Consulting Engineers* |
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| YES | 66% | 42% |
| In bookcase or shelf in my office | 21% | 28% |
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The above may be valuable to recently elected or appointed municipal officials who may not have fully discovered the ready and comprehensive purchasing service they have available in THE MUNICIPAL INDEX. Those who use it most and know it best, keep it "in reach."

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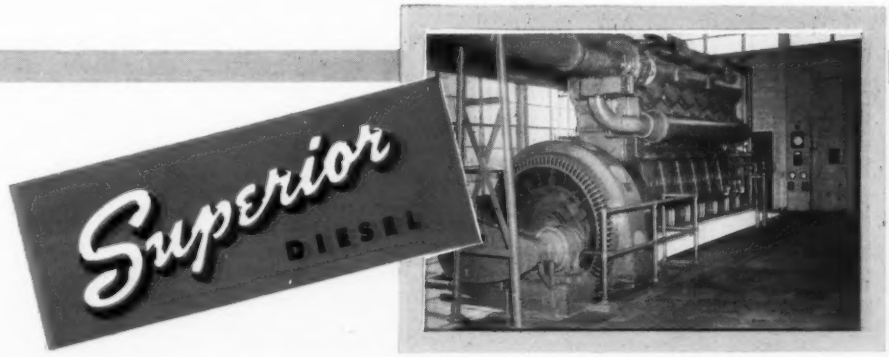


*This 6-cylinder Model 80 Supercharged Superior Diesel Engine develops 1080 HP at 360 RPM. It is used to provide electric power for widely separated villages and farms in Central Iowa.*

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Volume LXII Number 6
JUNE 1947
The American City

# Salary Trends for Municipal Officials and Employes

By CLARENCE E. RIDLEY
*Executive Director,*
*International City Managers' Association*
*Chicago, Ill.*

**Salaries paid municipal officials and employes have risen generally during the last five years from 10% to 40%, depending on the positions and the size of the city. Top city executives and department heads have seen their salaries rise slowly but steadily since 1942. Police and fire salaries have been raised at least 15% since 1943.**

**At the start of 1947, salaries for 14 basic city jobs were highest along the Pacific Coast, next highest in the East North Central region, and lowest in the South Atlantic region, according to a regional survey undertaken early this year by the International City Managers' Association and the Civil Service Assembly.**

**Salaries of the mayors, city managers, city clerks, engineers, health officers, fire and police chiefs and other officials were collected from 826 cities over 10,000. These salary data and an analysis of trends, on which the accompanying article is based, will be published by the ICMA in the *1947 Municipal Year Book*, which will be off the press late in June.**

AS of January 1, 1947, *mayors* of cities over 500,000 received an average salary of $16,011, with a high of $25,000 reported by one city. Mayors of non-council-manager cities in the other population groups averaged $8,096 for cities from 250,000 to 500,000; $6,531 for cities from 100,000 to 250,000; $5,346 for cities from 50,000 to 100,000; $3,577 in cities from 25,000 to 50,000 and $2,551 in cities from 10,000 to 25,000.

In the population group of 250,000 to 500,000, the average salary for *city managers* at the beginning of 1947 was $15,011; in cities of 100,000 to 250,000, $12,470; in cities of 50,000 to 100,000, $9,172; in cities of 25,000 to 50,000, $7,790; and in cities of 10,000 to 25,000, $5,846. From 1942 to 1947, the average salary of city managers in cities of 250,000 to 500,000 rose 12%, but the highest average percentage increase since 1942—41.3 per cent—was reported in cities from 100,000 to 250,000.

Managers' salaries paid by cities with populations of less than 10,000 were reported for 281 city managers as of the first of 1947. In cities under 5,000 population 160 city managers received an average salary of $3,846, representing a 27.7% increase over 1942. Individual salaries ranged from $650 to $9,600 for the cities under 5,000 population. In the cities from 5,000 to 10,000 population, 121 city managers received an average salary of $5,011, or an increase of 33% over 1942. Individual salaries ranged from $3,000 up to $12,000.

## Best-Paid Officials

The 1947 *Municipal Year Book* reports also some interesting comparisons between the rank order of the average salaries of the top officials in the several population groups. City managers and school superintendents receive the highest salaries, although the mayors in cities over 500,000 replace city managers, since there are no council-manager cities over 500,000. The highest paid officials in cities over 500,000 are the mayor, superintendent of schools, director of finance, attorney, and comptroller. In other population groups, the city manager, the school superintendent, mayor, engineer, chief personnel officer, and director of public works, comprise the highest paid positions. Other officials among the six highest paid positions include the health officer, police chief, director of public works, and auditor. The salary survey also included superintendent of parks, street superintendent, librarian, purchasing agent, recreation director, and city clerk.

## Police and Fire Services

Because cities usually spend more money for police and fire services than for any other activity, the salaries paid police and fire chiefs are of interest. Police and fire chiefs have seen their salaries rise steadily, although perhaps more slowly than the pay of their subordinates. As of January 1947, police chiefs averaged from $3,000 for cities of 10,000 to 25,000 to $8,400 for cities over 500,000, and fire chiefs averaged from $3,000 to $7,839 for the same two population groups. The cities over 500,000 reported the largest percentage increase in police chiefs' salaries as compared to 1946, 12%, while the lowest percentage increase, 6%, occurred in the cities from 250,000 to 500,000. Salaries of fire chiefs have risen from 3 to 20% from 1946 to 1947. In 1946, the average for cities from 10,000 to 25,000 was $2,640 and now it is $3,000. For cities over 500,000 the jump was from an average of $7,575 to $7,839. Individual cities reported fire chiefs' salaries as low as $1,456 to a high of $12,500.

As might be expected, the salaries of firemen and policemen continue to rise. The median entrance salaries of firemen are now at least 18% higher than in 1943, but rising as high as 25% over 1943 for cities over 500,000 and 31% over 1943 for cities from 10,000 to 25,000. The median maximum salary is at least 16% more now than in 1943 with the cities in two population groups—10,000 to 25,000 and 250,000 to 500,000—reporting average increases of 27% over 1943. The median maximum salary ranges from $2,280 for cities of 10,000 to 25,000 up to $2,937 for cities over 50,000. Median maximum salaries reported for firemen by individual cities ranges from a low of $1,456 to a high of $3,492.

Salaries for first-year policemen range on the average from $2,100 to $2,500, depending on the city's size group. The first-year salaries for patrolmen have risen at least 21% since 1943.



XUM

while the maximum salaries for non-supervisory patrolmen have been upped at least 15% since 1943. Median maximum salaries for patrolmen now range from $2,340 in cities of 10,000 to 25,000 to $3,180 in cities over 500,000.

The continued rise of police and fire salaries pushed the total expenditures for wages and salaries up still further, and total expenditures as well. Per capita police and fire expenditures for salaries for all cities over 10,000 are now $4.80 and $3.76 respectively. In 1946 these figures were $4.17 and $3.40. Salary expenditures made in 1946 by nearly 600 cities absorbed 90.6% of the $257,207,000 outlay for police service and 89.7% of the $194,036,000 outlay for fire service.

### Regional Survey of Fourteen Basic Jobs

A regional wage survey, made for the first time by *The Municipal Year Book*, reports salaries paid for fourteen basic jobs paid by ninety cities selected on the basis of size and geographic location. Pacific Coast rates averaged the highest for all types of jobs with the industrial section of the north east central right behind. Bakersfield, Calif., reported the highest monthly salary for junior typist-clerk, $220 a month, while Detroit, Mich., came second with $199 a month for the same job. Sixty-two cities indicated rates for jobs like play leader, the high being $250 per month paid by New London, Conn., with Long Beach and San Francisco, Calif., paying $239 and $235 respectively. Building inspectors, on the other hand, received a high of $439 monthly in Stockton, Calif., and $1.50 an hour in Teaneck, N. J. The *Municipal Year Book* reports these salaries as monthly, weekly, or hourly figures according to local usage.

Pay rates are shown for junior typist-clerk, junior stenographer, bookkeeping machine operator, bookkeeper, junior accountant, labor foreman, common laborer, junior draftsman, play leader, junior civil engineer, policeman, fireman, and building inspector. The cities were grouped into the following regions; northeast region, middle Atlantic, south Atlantic, east north central, east south central, west north central, west south central, mountain, and Pacific. The purpose was to provide up-to-date salary data for "standard" jobs so that city officials could easily estimate the salaries that should be paid for the higher positions for which each one of this group of fourteen serves as the gateway into the city's service.

### Determination of Pay Increases

Methods used by cities in making pay increases include a flat percentage increase, a bonus which is not considered part of the salary, increases on a graduated basis with a higher percentage increase for lower paid employes, or a flat dollar amount. At least thirteen cities gear pay rates to changes in the cost of living.

A sound position-classification system is vital to the establishment of any comprehensive and valid pay plan. A survey of the prevailing rates in the area is an important element in determining local pay policy. Many cities make annual or even more frequent surveys of wage and salary rates paid for comparable work in private industry, by local governments in the area, and by selected cities elsewhere of approximately the same size and type. If a city has a good position-classification and pay plan and the existing pay structures are internally consistent, the question of pay increases is largely a matter of over-all increases to meet the rising living costs.

### Cost-of-Living Payment Plans

At least thirteen cities are known to have cost-of-living pay adjustment plans. These cities are Colorado Springs, Colo.; Albert Lea, Duluth, and St. Paul, Minn.; Dearborn and Jackson, Mich.; Portland, Ore.; Phoenix, Ariz.; Madison, Milwaukee, Shorewood, and Whitefish Bay, Wis., and Brookline, Mass. Eleven of these cities use the consumers price index of the United States Bureau of Labor Statistics as a basis for making adjustments. Brookline uses the cost-of-living index of the State Department of Labor. The first city to adopt the cost-of-living pay adjustment plan was St. Paul in 1922, and the other cities have adopted their plans since 1940.

Gearing a pay plan to cost-of-living indexes requires considerably more planning and investigation than most bonus or general increase systems. It should not be undertaken without assurance of a reliable and currently maintained index of living costs definitely applicable to the city or area concerned. Most of the cities which have adopted such a plan limit adjustments to one a year, but because of the rapid increase in the cost of living during the past year a number of cities have made more than one increase. Generally no adjustment is made unless there is a change of from two to five points in the index, but Shorewood and Brookline changed their cost of living bonus monthly in accordance with the changes in the index. Pay adjustments apply only to a certain portion of the salary ranging from the first $100 of monthly salary in three cities up to the first $250 of monthly salary in one city.

## Importance of Knowing Local Population Trends

ALL too often municipalities, in planning their facilities and services, forget to consider their city's population and age distributions and disregard analyses of nation-wide and regional population shifts and trends. It is an impossibility for a municipality to do sound planning without such facts.

A recent report of the Bureau of the Census, "Urban and Rural Population of the United States, By Age and Sex," contains some figures which should be of interest to municipal officials. It shows that the proportion of the civilian population living in urban areas (defined as incorporated places having 2,500 or more inhabitants in 1940) increased from 56.7% in April 1940 to 60.0% in July 1946. Some 82,149,000 now live in urban areas, according to the census calculations. This change, the report declares, "marks a restoration of the more rapid increase in urban areas that was characteristic of the United States before 1930 but was temporarily suspended during the economic depression of the following decade." Movement to the cities has continued since the end of the war.

According to the national census estimates for July 1946, if your city is "average" as to population distribution, 21.6% of its total population is under fourteen years of age, and 7.1% is sixty-five years and over. Other age groupings run as follows:

| | |
|---|---|
| 14 to 19 years | 8.5% |
| 20 to 24 years | 8.6% |
| 25 to 44 years | 32.3% |
| 45 to 64 years | 21.8% |

Of special interest to persons responsible for planning community school facilities and educational programs should be the information that the population under five years of age increased from 10,542,000 in April 1940 to 13,417,000 in July 1946, a gain of 27.3%, as compared with a gain of only 7.3% in the population as a whole. The group aged five to nine years increased from 10,685,000 in 1940 to 11,633,000 in 1946, a gain of almost a million. The census points out that the combined increase of 3,824,000 in these two youngest age groups constituted two-fifths of the total increase.

Certainly it is to every community's advantage, from every point of view, to have close at hand the facts, figures, and estimates about present and expected population trends.

# Washington Has Local Problems, Too

**The Nation's capital, like its sister communities, shows the effects of wartime and post-war overpopulation. The author discusses plans for the city's new municipal needs.**

By H. PAUL CAEMMERER, *Secretary The National Commission of Fine Arts Washington, D. C.*

EACH war of major importance has had its repercussions on the city of Washington, D. C., bringing thousands of employes to the city and necessitating the construction of temporary buildings to house them. The effects of World War II on our capital city are still much in evidence. People came to Washington, not only from all the states of the Union, but also from all the leading countries of the world. Today the city proper numbers about 1,000,000 inhabitants, while metropolitan Washington fifteen miles from the center of the city in each direction, covering an area of approximately 900 square miles, has a population of 1,500,000.

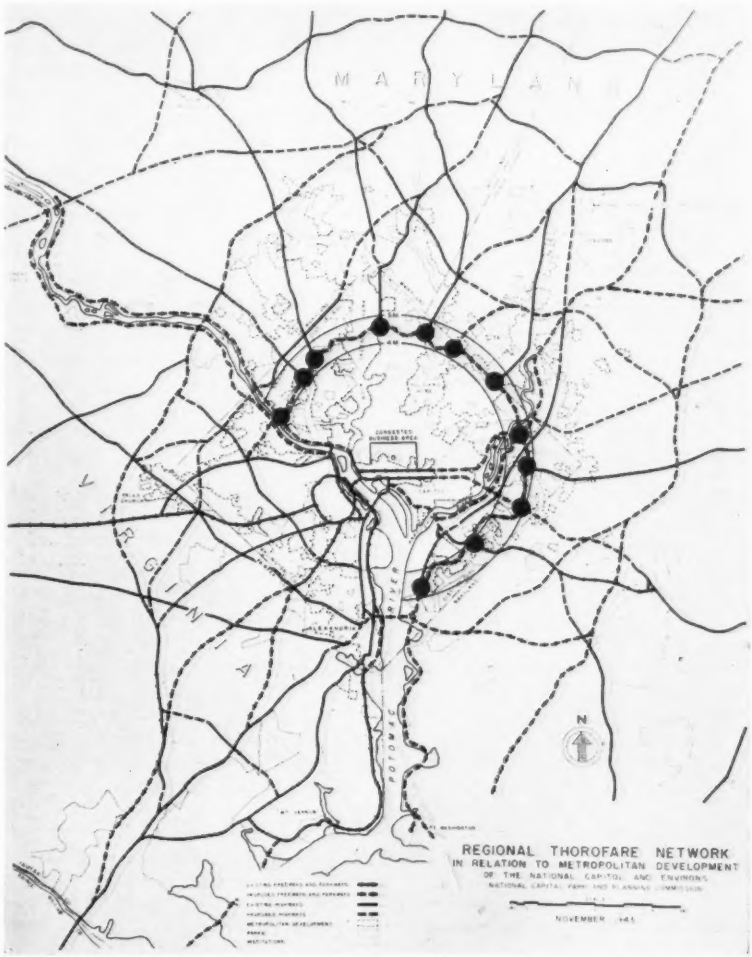
## New Buildings Needed

To create an organization that could wage a "global war" necessitated, first of all, many temporary war buildings. Fully forty of them, some several blocks long, were built—most of them on park land owned by the Government. In addition, over a hundred additional structures (consisting of office buildings, apartments and residences) were rented or acquired and converted into Government offices. The civilian employes of the Government increased from 133,856 on June 30, 1941, to 287,000 in February 1943. This peak figure dropped to 221,339 on December 31, 1946, and there is a strong movement afoot in Congress to have that number decidedly reduced this fiscal year. The construction of many Government buildings will still be required, however, because the temporary war buildings were cheaply constructed and were not meant to last longer than ten years at the most. Privately owned office buildings, apartments, and residences should be vacated as soon as possible and returned to meet private needs. But when all this has been accomplished, there remain to be solved still other great problems incident to the phenomenal growth of our national capital.

As a preliminary step towards adopting a construction program for post-war Washington, an exhibition was held in the fall of 1945. It was sponsored by the National Capital Park and Planning Commission and the National Commission of Fine Arts, in cooperation with other leading agencies of the Government concerned with the development of the city, such as the Architect of the Capitol, the Public Buildings Administration and the Public Roads Administration of the Federal Works Agency, the District of Columbia Highway Department, the United States Engineer Office, the National Park Service, and the National Capital Housing Authority. Indications were that a great construction program, similar to that after World War I, could be inaugurated. Representative Fritz G. Lanham of Texas introduced the legislation (H. R. 4276) for such a program in the 79th Congress. However, the cry of "houses first" predominated, and the end of that Congress saw the bill virtually thrown into the wastebasket.

## Growth Problems

In recent months the Commissioners of the District of Columbia have attempted to cope with the great problem of providing adequately for the city's municipal needs. No large public




**Fort Drive—an important circumferential highway proposed to be constructed four to five miles from the center of the congested business area in Washington.**

**"Before" and "after" views of NCHA redevelopments in slum areas. Since 1934, 974 slum dwellings have been demolished.**

school building has been built for nearly ten years, and scarcely a fire and police station, though the population in the same period of time has increased by nearly 500,000. In other words, in a decade the city of Washington has had its population doubled, with few provisions made for additional facilities to meet this growth, although the Municipal Architect has projects pending amounting in value to $35,000,000. Such an increase in population has produced a great burden on the water supply, sewer system, and the like.

The problem was made the subject of particular study by the Engineer Commissioner of the District of Columbia, Brigadier General Gordon R. Young, who published a report about a year ago presenting the need for $228,000,000 in construction projects during a six-year period. These projects are aimed at providing for Washington's growth and at establishing facilities befitting the capital of a great country.

### Some Recommended Projects

The survey includes an extensive traffic improvement program, to cost $47,877,140. The aim is to relieve the congested traffic conditions in the central part of the city, and to provide for widening streets and constructing expressways to expedite traffic to the suburban areas. These routes are being studied by the District of Columbia Highway Department in cooperation with the National Capital Park and Planning Commission and the Public Roads Administration. A one-cent increase in the gasoline tax is proposed which is expected to raise an additional $8,000,000 yearly to cover this expense.

Plans to improve the city water supply are spread over a forty-three-year expansion program, developed jointly by the Engineer Corps of the Army and the District of Columbia Water Department. The first six years call for $19,512,800 worth of new facilities, of which about $2,000,000 is carried in the budget for the fiscal year 1947. Plans call for several storage reservoirs and a big crosstown main to improve distribution.

Related to the water supply is the sewage disposal system, which was established for a city of 650,000. But since the city's population is nearly a million, there is an excess of waste which is overloading the sewers to the danger point. Thus during the next six years, it is proposed to spend $23,265,000 on additional storm water and sanitary sewers, as well as $2,200,0000 for an additional sewage disposal plant.

More than $10,000,000 must be spent to bring welfare institutions up to acceptable standards. Expansion and modernization are long overdue, and some are actual firetraps. The program also calls for modest amounts to provide for additional recreational areas and branch libraries.

On the accepted basis of 2.5 per 1,000, the present police force should be increased from about 1700 to 2500, for which $32,500,000 has been allowed. Similar improvements should be made without delay in the fire department; $17,850,000 is proposed for the purpose of repairing old buildings and establishing a three-platoon system of fire protection, instead of the two-platoon system which now exists.

### Committee Studies Program

The entire program is still being studied by a special committee that includes representatives of the Board of Trade and citizens' associations. The major projects proposed must, of course, have Congressional approval, since Congress, by virtue of the Constitution of the United States (Article I, Sec. 8, Par. 17) is in the ultimate responsible for the administration of the District of Columbia.

The problem of financing this improvement program is giving both the Commissioners and private citizens a headache. Brigadier General Young has estimated that a maximum of only $62,000,000 can be raised annually by taxation, considering the present limitations; whereas the 1948 Budget is $95,000,000. The appropriation for 1947 was about $75,000,000, to which the Federal Government contributed $9,000,000. To meet the difference, there must thus be either an increase in the rate of taxation, or an increase in the allotment by the Federal Government. Back in 1901 the contribution was on a fifty-fifty basis. Just how much more the Federal Government should contribute to the city's cost of services and facilities now is being studied by a special committee of Congress. Whether or not the District Commissioners should borrow the money to carry out the much-needed municipal projects is another phase of the problem.

Early in February 1947, the Administrator of the Federal Works Agency, Major General Philip B. Fleming, outlined a building program in an address entitled "What's Ahead for Construction," before the Washington Building Congress. Referring to metropolitan Washington in his predictions of 1947 construction volume, General Fleming said:

> The Federal building program here conceivably can be around ten million dollars for this year. That, of course, is a good deal less than the work that urgently needs doing.

He then cited improvements at the National Airport which will take fully $4,000,000, and detailed several building projects for the remaining amount.

Speaking of highways and other improvements, General Fleming stated:

> To summarize, then, the District's public works program, which may reasonably be expected to start in 1947, totals an estimated 28 million dollars in Federal buildings, streets and highways. And for the more indefinite future, plans will be ready for miscellaneous projects to cost 10½ million dollars. All this, of course, adds up to far less than the minimum needs of the capital. . .

In all this work the National Commission of Fine Arts has the duty of advising on aesthetic questions relating to these projects—architecture, landscape architecture, sculpture, and

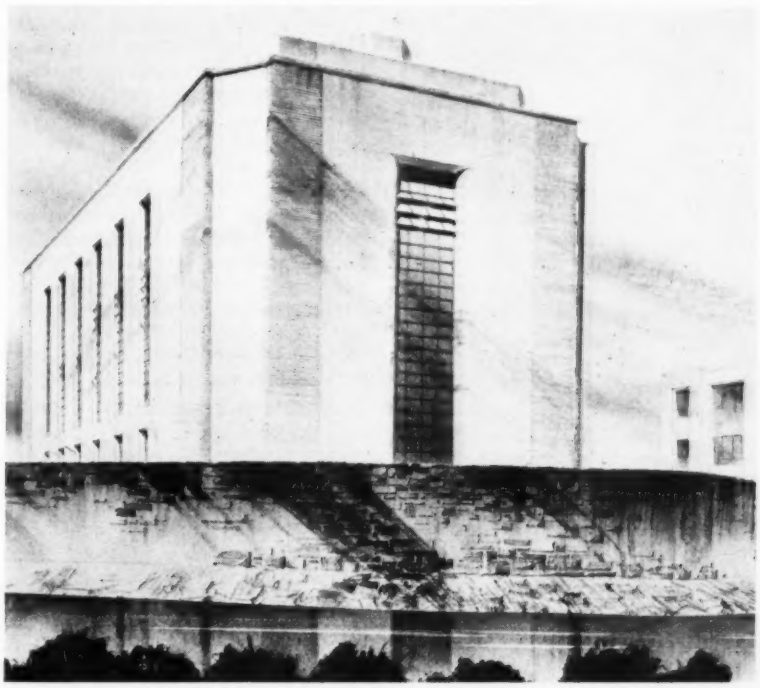
painting, as well as important phases relating to planning,—in all of which the Commission cooperates closely with the responsible establishments of the Government.

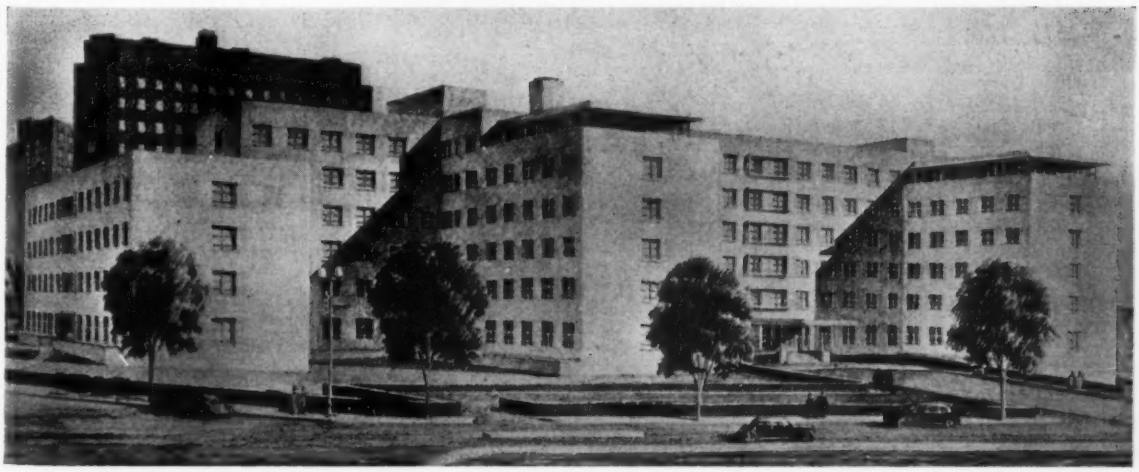
Several long-delayed building projects are now getting under way. Congress has appropriated $7,750,000 for the West Central Heating Plant, which is being built at 29th and K Streets, N. W. It will be a subsidiary to the main central heating plant, which heats somewhat over 100 buildings. The steel framework is in place, but the date of completion of the building has not been determined.

The East Capital Street Development for a beautiful "Boulevard" east of the Capital awaits action by Congress. In the meantime designs by Eggers & Higgins, Architects, of New York City, have been approved for an Army Medical Library east of the Folger Shakespeare Library. Plans are also being made for a large General Accounting Office building at 5th and G Streets, N. W., for which funds have been appropriated by Congress. Work has begun on a large underpass at Dupont Circle, the South Capital Street bridge and the "Twin Bridges" at 14th Street (near the Jefferson Memorial shown on the cover) to replace the old Highway Bridge. A Veterans' Hospital of 750 beds has also been proposed for the Washington area.

Concerning the urban redevelopment program, Major General U. S. Grant III, Chairman of the National Capital Park and Planning Commission, stated:

> We succeeded, at the end of the last session of Congress, in getting an urban redevelopment bill enacted for the District of Columbia. Essentially, it provides for this Commission to do the planning and for the District Commissioners to hold a public hearing before approval of both the plan and the project area. It also establishes a new land agency to handle the business of acquiring the land and disposing of it in accordance with the plan.
>
> The land agency has now been set up and is awaiting Senate approval. Nominations have been made for it. This Commission has asked for appropriations for its planning work as well as for a census by the District Commissioners to determine income groups in the District. Pending the receipt of that money, we cannot do very much more than we have done to date. However, with the approval of the Commissioners, three blighted areas have been designated as requiring initial attention for redevelopment.
>
> At the present time a preliminary plan is being prepared for the celebration of the Sesquicentennial in observance of the establishment of the Federal Government in the District of Columbia, which will take place in 1950. It is no wonder that in this span of 150 years, while having grown to be one of the world's greatest capitals and most beautiful cities, Washington should also come face to face with some of the typical problems confronted by other large metropolitan areas throughout the country. But since Washington is the one city in the United States in which *all* citizens have a share, it is to be hoped that the critical problems brought on by the war will be attended to promptly. Our national capital should always be a city in keeping with the dignity, wealth, and power of this great republic.





**Sketches showing (right) the West Central Heating Plant, to be a subsidiary to the main central heating plant which heats over 100 buildings, and (below) the George Washington University Hospital, now under construction.**

# The Design of Concrete Pavements

THE design of concrete pavements is based upon a vast amount of data which have been compiled during years of research and practical experience. These data from observations of pavements in service, from test roads, laboratory research, field investigations, and mathematical computations have removed much of the necessity for guesswork or rule-of-thumb methods in concrete pavement design. It is the purpose of this article to outline and discuss briefly the procedure followed by today's busy practicing city engineer.

Before considering the actual design of the pavement slab, the engineer must determine the width and number of traffic lanes needed. The number of pavement lanes needed depends primarily on the amount of traffic to be carried. The width of individual pavement lanes is governed by the assumed design-speed of the street and by the character of traffic to be caried. The weight and frequency of wheel loads form the basis for an economical structural design.

## Traffic

It is obvious that the traffic expectancy for a primary or secondary road in a metropolitan or industrial area will be different from that in a semi-industrial or strictly agricultural area. It is also evident that the traffic expectancy on a primary through route will be entirely different from that on a feeder or strictly farm-to-market road. Similarly, the traffic expectancy of a city street in a commercial area will be different from that of a street in a strictly residential area.

The wheel-load characteristics of traffic which a specific street will be called upon to carry after improvement can be readily estimated. Data available from the State-Wide Highway Planning Surveys may furnish a basis for this estimate. Traffic studies and analysis in cities indicate that streets of similar importance in areas of similar character have essentially the same traffic densities and wheel-load intensities.

In general, city streets can be placed in four classes according to their traffic use, depending on the total volume and frequency of the expected wheel loads in the heavier weight classifications.

*Class I Streets* comprise what are generally termed as heavy-duty streets. They include downtown business streets, state and county trunk line routes through cities, principal traffic arteries serving large manufacturing districts, freight terminals, docks, and warehouses. These streets carry the largest number of heavy trucks. For this class of street it has been found that the predominating wheel load (the heaviest wheel load which will cause at least 100,000 repetitions of stress during the life for which the pavement is being designed) will be between 10,000 and 11,000 pounds. Wheel loads in excess of these figures are often present but occur far less frequently.

*Class II Streets* include arterial city streets not contained in Class I. They are the main traffic streets carrying intra-city traffic. Wheel loads in excess of 10,000 pounds are infrequent, and the predominating wheel load will be between 8,000 and 9,000 pounds.

*Class III Streets* include secondary arterial streets or feeder routes used for collecting or dispersing traffic to and from the arterial street system. The total volume of traffic is less than the amount found on Class II Streets. Wheel loads in excess of 8,000 pounds are correspondingly less frequent, and the predominating wheel load will be between 6,000 and 7,000 pounds.

*Class IV Streets* carry little traffic except that originating on the street or occasioned by delivery trucks. Streets in this class are usually limited to residential areas where the heaviest wheel loads expected would be those of coal or fuel delivery trucks. On such streets the predominating wheel load usually will be between 5,000 and 6,000 pounds.

## Subgrade Support

When designing any pavement, the support offered by the subgrade must be evaluated and taken into account with the loading and quality of material from which the pavement is constructed. Well-established methods of evaluating the load-carrying capacity of subgrade soils are discussed in detail in the Portland Cement Association booklet, *Concrete Pavement Design*, available without charge from the company. In concrete pavement design the Westergaard method of evaluating the supporting power of a subgrade is used. In this method, subgrades are rated according to their "k" value, where "k", the Modulus of Subgrade Reaction, is the load in pounds per square inch on a loaded area of the subgrade divided by the deflection in inches of the subgrade under that load. It is expressed

**There are four classes of concrete streets. Here are Class I, heavy-duty streets; and Class II, main arterial streets.**

# for City Streets

By E. J. HENNINGS, *Engineer*
*Highways and Municipal Bureau*
*Portland Cement Association*
*Chicago, Ill.*

**Whatever the class of street, there is a design for an economical and functional concrete pavement.**

in "pounds per square inch per inch". Tables in *Concrete Paving Design* give the range of "k" values that can be expected from different classes of soils.

Studies may be made to determine the most economical strength of concrete for use under existing conditions. The relative cost of cement, aggregate, labor, and equipment will determine whether a concrete having a Modulus of Rupture of say 800 psi would be more economical than a concrete having a Modulus of Rupture of perhaps 600 psi. Under average conditions, concrete having a Modulus of Rupture between 650 and 750 psi will be found most economical. The selection of a concrete mixture must also be governed by the requirements of durability under the climatic conditions to which it will be exposed. In areas where the pavement will be subjected to freezing and thawing, and especially where salt or calcium chloride will be applied to icy pavements, air-entrained concrete should be used. It costs no more and will assure freedom from troublesome and disfiguring scaling, if the recommended 3% to 6% of air is entrained and if ordinary good concrete practice is used.

### Working Stress and Safety Factor

Comprehensive studies have established the fact that when a stress does not exceed 50% of the Modulus of Rupture of concrete (safety factor of two or more), concrete will stand an unlimited number of repititions of such stress without failure through fatigue. Therefore, a safety factor of two should be used for the predominating wheel load when working out the design of a concrete pavement.

For the less frequent wheel loads, greater than the predominating wheel load, it is practical and economical to use a safety factor ranging between one and two. Within this range, the number of repetitions required to cause failure varies with the safety factor, that is, as the safety factor decreases the number or repetitions allowed will also decrease. This is shown graphically in *Concrete Pavement Design* and is discussed in detail in the same booklet.

### Types of Pavement Designs

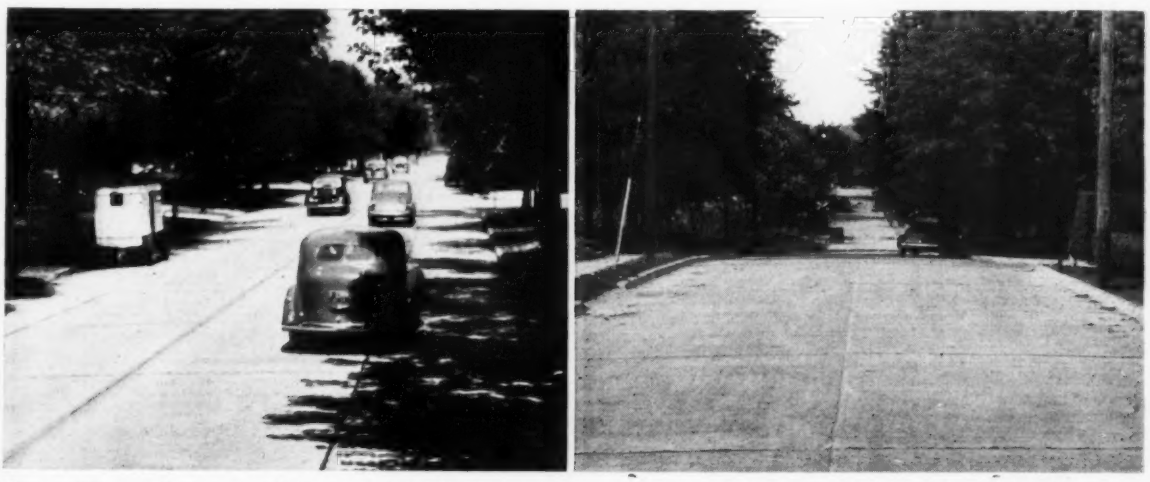
It has been established by mathematical analysis, tests, and experience that stresses caused by loads are greater at the corners and the edges than in the interior of the slab. Although there are conditions which will justify the use of pavement of uniform thickness, a thickened edge or balanced cross-section usually will be more economical because less concrete will be required to carry the same loads.

Consideration also must be given to the choice of protected or unprotected corners. Protected corners are those formed by the intersection of transverse joints with pavement edges or longitudinal joints in which provision is made for connecting adjacent portions of the pavement so that they aid one another in carrying the loads. This load transference may be made by means of aggregate interlock, slip dowels, or other suitable mechanical load-carrying devices. Unprotected corners are those corners described above where there is no adequate provision for load transference.

### Design Details

Thickened Edges: In a balanced cross-section, thickened edges are required along all *free* longitudinal joints where wheels travel. A free joint is one that receives no support from the adjacent sections of the pavement or curb. All other longitudinal joints having no thickened edges should be hinged tongue and groove or dummy groove type joints held together with steel tie bars. Where a separate curb and gutter with one of the hinged type joints described above is used, the exterior edges of the pavement along the gutter flag need not be thickened. Where integral curb is provided, no additional edge thickening is required as the curb itself provides sufficient edge thickness, and the wheel load normally is a safe distance from the curb.

Concrete street pavements not over three lanes in width may be completely tied together with tie bars across the longitudinal joints dividing the pavement into lanes. Such pavements, with integral curbs on each edge, require no thickened edge. Thus, the pavement



**Classes III and IV carry a lighter wheel load. They are, respectively, secondary arterial and residential streets.**

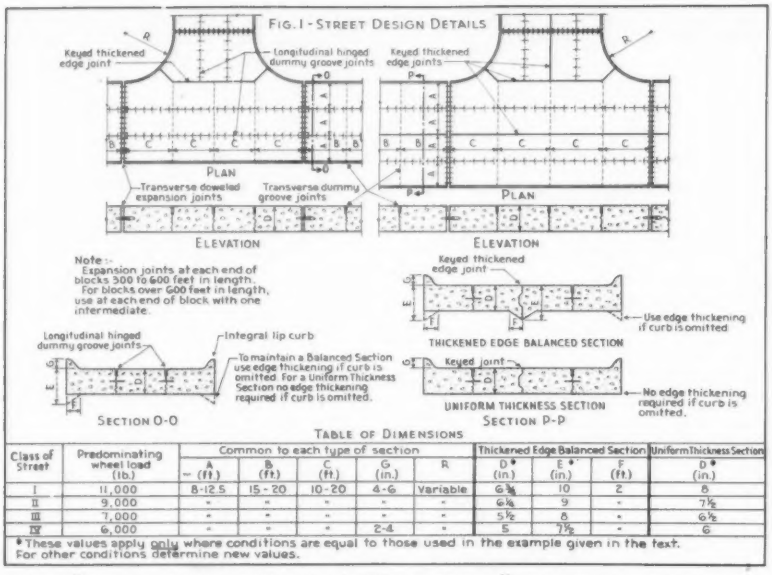


FIG. 1 - STREET DESIGN DETAILS
Keyed thickened edge joint
Longitudinal hinged dummy groove joints
Keyed thickened edge joints
PLAN
Transverse doweled expansion joints
Transverse dummy groove joints
ELEVATION
Note :-
Expansion joints at each end of blocks 300 to 600 feet in length.
For blocks over 600 feet in length, use at each end of block with one intermediate.
Keyed thickened edge joint
Use edge thickening if curb is omitted
THICKENED EDGE BALANCED SECTION
Longitudinal hinged dummy groove joints
Integral lip curb
To maintain a Balanced Section use edge thickening if curb is omitted. For a Uniform Thickness Section no edge thickening required if curb is omitted.
Keyed joint
No edge thickening required if curb is omitted.
UNIFORM THICKNESS SECTION
SECTION O-O
SECTION P-P

TABLE OF DIMENSIONS

| Class of Street | Predominating wheel load (lb.) | Common to each type of section | | | | | Thickened Edge Balanced Section | | | Uniform Thickness Section |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A (ft.) | B (ft.) | C (ft.) | G (in.) | R | D* (in.) | E* (in.) | F (ft.) | D* (in.) |
| I | 11,000 | 8-12.5 | 15 - 20 | 10-20 | 4-6 | Variable | 6¾ | 10 | 2 | 8 |
| II | 9,000 | " | " | " | " | " | 6¼ | 9 | " | 7½ |
| III | 7,000 | " | " | " | " | " | 5½ | 8 | " | 6½ |
| IV | 6,000 | " | " | " | 2-4 | " | 5 | 7½ | " | 6 |

*These values apply only where conditions are equal to those used in the example given in the text. For other conditions determine new values.

FROM "DESIGN OF CONCRETE PAVEMENTS FOR MUNICIPAL STREETS," PUBLISHED BY PORTLAND CEMENT ASSOCIATION.

would have a uniform thickness equal to 0.85 d.

Pavements over three lanes wide must be provided with a free, longitudinal joint at not more than every third lane. If a balanced cross-section is used, the pavement edge must be thickened at this free joint.

## Reinforcing

When used, steel is placed in concrete pavement not to increase its load carrying capacity nor to prevent cracking, but to hold together any cracks that may develop. The reinforcing mesh also holds the fractured faces of the crack in intimate contact and by aggregate interlock aids in load transmission. It also prevents infiltration of incompressible materials. If steel were used to increase the strength of the slab, it would have to be placed in two layers, one near the top and the other near the bottom, since critical tensile stresses may occur either in the bottom or the top of the slab. Steel would have to be used in much larger amounts than has ever been considered feasible, if it were to add appreciably to the pavement's structural strength. If greater load carrying capacity is required, it can be secured at lower cost by increasing concrete thickness.

Since steel's only function in a concrete pavement is to hold cracks together after they form, it is useless if no cracking occurs. If transverse joints are spaced to control cracking, distributed reinforcement can be omitted.

## Longitudinal Joints

Transverse flexural stresses caused by the curling or warping of the pavement can be reduced by dividing the width of the pavement into lanes not exceeding 12½ feet. These joints are formed by installing a deformed metal joint, dummy groove joint, or construction joint at these locations. Tie bars placed at locations previously described in this article will hold the two faces of the joint in intimate contact.

## Transverse Joints

Transverse joints should be spaced to divide the pavement into slab lengths which will reasonably control intermediate cracking. This can be accomplished satisfactorily and economically by placing expansion joints at relatively long intervals and placing intermediate contraction joints of the dummy-groove type to divide the pavement into slab lengths as follows:

| Type of Coarse Aggregate | Spacing of Contraction Joints |
|---|---|
| Crushed Granite | 25 Feet |
| Crushed Limestone | 20 |
| Crushed Flinty Limestone | 20 |
| Calcareous Gravel | 20 |
| Siliceous Gravel | 15 |
| Gravel less than ¾-inch in size | 15 |
| Slag | 15 |

It is recommended that ¾-inch expansion joints be placed at each side of each intersecting street. For blocks 600 feet and less in length, no additional expansion joints are recommended. For blocks which exceed 600 feet in length, one or more intermediate expansion joints may be used to reduce the maximum spacing to not more than 600 feet. The intermediate space between expansion joints should be divided by contraction joints into intervals as shown in the above table. These contraction joints may be constructed by forming a groove in the top of the slab of a depth equal to from 1/3 to ¼ the pavement thickness. The groove is then sealed with a suitable plastic filler to prevent infiltration of inert material. Details covering the design and layout of joints are given in Figure 1.

During the many years that have passed since the introduction of concrete roads, much discussion and wide differences of opinion have developed regarding methods of jointing concrete pavements, and the types of joints to be used. Despite this great diversity in jointing practice, concrete roads have performed well. This very success accounts, in a large measure, for the vehemence with which individual engineers have defended and advocated their own particular methods. The past few years have brought increasing attention to this subject, but, notwithstanding the large amount of research which has been done and the thirty-five years of field experience available for study, wide differences of opinion and practice still exist.

Volume changes in concrete result from temperature changes, changes in moisture content, and from stresses. Volume changes resulting from stresses can be divided further into elastic deformation and plastic flow. If expansion joints are eliminated or minimized, it can be seen that compression due to increases in temperature and moisture tend to offset tensile stresses due to load. It also reduces the opening and improves load transference at the contraction joints. Both actions are distinctly beneficial to the pavement. Compression will not always be present, but to the extent that it is present, it will reduce the number of critical stress repetitions which may occur and increase the life span of the pavement. In conclusion, expansion joints spaced at considerable distances using a low-cost non-extruding type of filler and sealed properly eliminate the monotonous bumping so often objected to by the riding public. It also reduces the cost of construction and eliminates a troublesome construction element.

Expansion joints in pavements should be equipped with dowels or other approved load transmission devices. Where dummy-type contraction joints are used in connection with no expansion joints or with expansion joints at long spacings, aggregate interlock will provide a substantial amount of load transfer. Contraction joints which are less than 100 feet from expansion joints may open up to such an extent that load transmission by aggregate interlock is no longer effective. In these cases it may be desirable to use load transmission devices.

# The Licking Creek Line

**The Borough of Mount Union, Pa., taps a new watershed to insure the adequacy of its water supply.**

By MELVIN H. DAVEN
*Superintendent*
*Mount Union Borough Water Works*

THE Licking Creek supply constitutes our answer to what appeared to be a coming water shortage. The Borough of Mount Union put the supply into service last year with 27,850 feet of new 10-inch pipe and 13,335 feet of existing 6-inch pipe. The 6-inch pipe will be replaced by 10-inch pipe as soon as possible out of current revenue.

This improvement became necessary through the inadequacy of other supplies. This inadequacy arose because the existing transmission-main capacity failed to give the required fire flows, and there was not enough yield from the existing water sheds to supply the industrial and domestic demand during droughts. We had three serious water shortages between 1930 and 1945.

The Licking Creek is an entirely new development. Weir gagings on this stream, at the end of a six-week period of no rainfall in the fall of 1944, showed a stream flow of 700,000 gallons per day. Since Mount Union's average water use is 700,000 gallons daily, our engineer proposed that we use the creek for our main source and rely on the older supplies for capacity to handle peak requirements.

This new supply draws from numerous spring-fed streams on a watershed of 6.23 square miles. Studies of similar watersheds indicate that the lowest yield from this supply during periods of extreme dry weather (without the benefit of storage) may be as low as 400,000 gallons a day. Thus, the safe minimum dry-weather yield of the other watersheds, amounting to 330,000 gallons daily, will make up the balance of the water during a dry period.

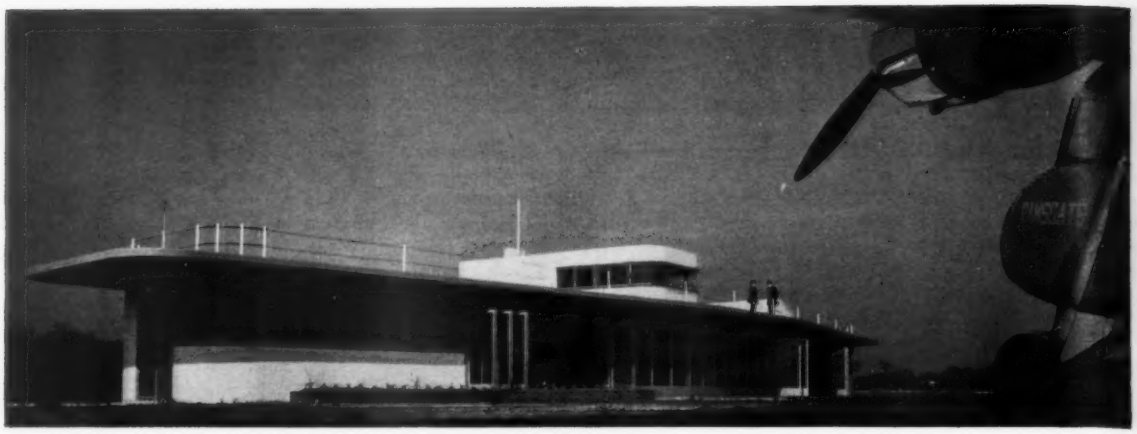
The Licking Creek watershed and the first 15,000 feet of transmission main are on Pennsylvania State Forest land. Permission to occupy it was granted to us by the Commonwealth of Pennsylvania by a lease agreement.

The transmission main included a river crossing 825 feet wide. The depth of the water averaged only about three feet at the time of installing the pipe. It was laid in a 3-foot trench and connected with Dresser couplings by a diver brought from New York.

A ¾-yard Bay City backhoe trenched out the entire project, and a bulldozer did the backfilling. The job was under contract to the Harman Construction Co., 30 Church St., New York, N. Y., and was under the direct supervision of Philip Trapani, superintendent for the contractor. C. M. Africa, borough engineer, and the author represented the Borough.

**Above: This looks like a flood but actually is a shallow river in which the backhoe and bulldozer are laying the trench for the supply line. Below: The operator doesn't walk to work—he gets in a boat and rides.**

# Airport Facts



**Clean designs for the smaller airport such as this one in England require careful analysis of each functional operation.**

**A scientific approach is necessary to take airport planning out of the clouds and bring it down to earth.**

By J. B. BAYARD, Jr.
*Director, Airport Division*
*Horner and Shifrin, St. Louis, Mo.*
*Smith, Hinchman and Grylls, Inc.*
*Detroit, Mich.*

AIRPORTS, to be soundly built and operated, must meet the needs of certain fundamental data that an architectural and engineering survey can disclose. This need for fundamental information is not confined to projects for new airports alone. The same data must be acquired also for existing airports faced with the necessity for any degree of improvement or expansion.

The unhappy results of airports built without regard for these fundamentals is well known by both the travelling and the taxpaying public. The traveler finds himself consuming long periods of time to reach the airports because of the lack of coordinated airport planning and building. At the airport, he discovers that he is unable to buy decent food or to find a clean place to eat; he is unable to spend time between planes in anything but complete boredom. He is uneasy about his reservation, his tickets, his baggage, and he is irritated by the length of time it takes after leaving the plane to get himself and his belongings assembled and started to his final destination.

The taxpayer constantly gets unpleasant reminders of airports through annual deficit budgetary provisions for maintenance revision, repairs and total rebuilding of badly conceived facilities. Bond issues are floated for capital improvements on which the taxpayer pays the bill for interest and amortization. (The second largest and fourth largest airports in the United States both find themselves today with terminal buildings that must be completely replaced after only about ten years' service.)

One important item of judgment in making a survey relates to differences in *penetration*. Money can be wasted in too detailed an exploration of items which should only be skimmed until something else has been ascertained first. Other kinds of facts may have to be known in full detail right from the start. It is also astonishing how much analysis has been given to factors which are easily amenable to scientific determination, compared to those items which may be far more important but which involve more ingenuity in research. For example, soil conditions, now at the top of the list in a great many published treatises, should be considered after many other items. Thus, in judging between two sites, the primary question is not which one can be prepared more cheaply for runways.

## Contents of a Survey

How do you determine an area? An airport area corresponds to an existing area of retail consumer influence served by adequate transportation and community facilities. A word of caution is needed here: most transportation networks completely ignore political subdivisions. Thus the obvious location for the major terminal of a certain midwestern city is across a big river and in another state; for cities on a national boundary the most economical site may even be across the border in another country. In outline, the survey will cover the following factors:

I. General Factors.
- A. *Growth Indices.*
  - 1. Population characteristics of the selected areas.
    - a. Rates of growth.
    - b. Income (Basic information on what income groups use airplanes is very difficult to secure from airlines).
    - c. Telephones of all types.
    - d. Postal receipts.
    - e. Power consumed.
  - 2. Industry and Commerce.
    - a. Retail trade-sales, payroll, number of employes.
    - b. Wholesale trade sales, payroll, number of employes.
    - c. Manufacturing—millions added by industrial products, number of employes.
- B. *Land Use Pattern*: charts showing areas devoted to residential, commercial, or industrial use, also densities of occupation of the land.
- C. *Ground Transportation*: for the fu-

**The confusion of operation associated with many of our airports hardly encourages confidence in this type of travel.**

ture of aviation, even the development of new, efficient aircraft is no more important than the assumption of responsibility for developing a coordinated system from the moment the passenger leaves his own front door. An ever - increasing proportion of air traffic starts as commuter traffic.

II. Aeronautical Factors. This concerns the regional share of total air traffic business. Contents are:

A. Comparison of the regional picture with the transportation pictures for the United States as a whole and determination of the region's share.

B. Evaluation of *local factors* influencing this ratio in the future.

C. A similar evaluation for *non-scheduled* flying, with allowance for local deviations from the normal pattern.

D. *Local patterns and conditions.* This includes:

1. Meteorological data: the "wind rose" and what affect it has.
2. Topographical survey.
3. Soil survey. (A topographical survey is concerned with contours only, while a soil survey is concerned only with the composition of the soil.)
4. Airway patterns in the locality.
5. Existing airport facilities.

E. Establishment of a *trial pattern* for a local airport system to meet the aeronautical requirements as these are determined by an evaluation of factors listed above. (At this point in the survey it is necessary to strike this kind of a trial balance.)

F. Computation and compilation of *capital costs* involved in the trial system. This includes setting up costs for alternate or competitive locations as well as the first-line locations tentatively chosen. In brief, a rough sketch is made showing both the first-line and second-choice facilities and their comparative capital structures. An important step is to determine the air navigation facilities required in each specific location. These air navigation facilities involve the runway pattern (including taxying distances for planes), markings, radio beams, obstructions, etc. They will vary widely from field to field.

III. Economic Factors. The economic analysis of an airport system is supremely important. In a period of prosperity it is quite possible to set up almost any kind of a workable airport system. It is possible to get it financed and started in operation without too much trouble. But look to the future! In a period of depression, parasitic functions are the first to lose public support, and your beautiful uneconomical airport system will collapse a lot more quickly than it was inflated.

Income potential: Must be balanced against capital costs, described in II. Income potential consists of:

A. Revenue from aeronautical activities. These consist of scheduled operations and non-scheduled operations. The list which follows applies to scheduled operations (all or a part of the same list applies to non-scheduled operations): Landing fees; ramp charges (including telephone outlets and gas outlets); terminal building rentals; office space rentals; utility charges (electricity, water, sewerage, etc.); personnel services such as janitor; ground rentals, including charges for communications buildings, hangars and shops; tank farms; commissions for items such as bus and taxi privileges.

B. Revenue from obvious non-aeronautical sources. These include:

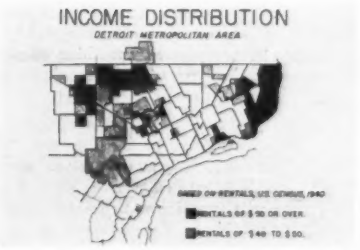
1. Private automobile parking.
2. Food service: the airport restaurant, coffee shop, in-flight meal preparation.
3. Conveniences: telephone booths, Western Union service, lockers, toilets, news stands, valet service involving barber shops, beauty parlors, shoeshine stands, clothes pressing and cleaning, and the like.
4. Advertising. An existing airport which shall not be named betrays the glaring defect of a 1,700-foot concourse serving a vast public and devoid of all provisions for advertising revenue. Advertising, which crept into railroad stations higgledy-piggledy, should be consciously planned in airports. In a certain western airport, situated in rich ranch country, a major revenue-producing feature is a display of farm machinery.

C. Revenue from merchandising at the airport. Wherever a high-income public congregates in large numbers, as it does at an airport, there is an implicit opportunity for clever merchandising. Airport promotion which ignores this fact deserves the fate that it will receive. On the other hand, blue-sky promotion is out of order.

D. Revenue from entertainment and recreation:

1. An airport theatre in many situations is a natural—and the possibility must be canvassed that it might be used alternately as an auditorium for fashion displays or other gatherings.
2. Sports facilities. Here the possi-

GENERAL PLAN WITH INTERNATIONAL SITE AS MAJOR PASSENGER PORT
O MAJOR PASSENGER PORT
M MAJOR CARGO PORT
MA MAJOR PASS.-CARGO PORT
A INTERMEDIATE AIRPORT
O MINOR AIRPORT
A ARMY TRAINING BASE
N NAVAL TRAINING BASE
T TESTING FIELD
C CIVILIAN TRAINING FIELD
P PERSONAL FLYING FIELD
PROPOSED HIGHSPEED EXPRESSWAYS




**Studies such as these (above and below) throw a light on airport operation that makes an airport anlysis sound.**

bilties are so diverse that they may only be suggested. Often the natural situation for an airport is in open country rather than in built-up areas, and adjacent grounds might be developed very profitably for various sports such as tennis, handball, and possibly even baseball. It should be remembered that even a free public park in the vicinity of an airport will increase the turnstile revenue derived from added airport spectators, plus vital income to concessioners.

IV Administrative Factors.

The questions which occur at this point stand at the borderline between public policy and shrewd business management. Who is benefited by the airport? How widely are the benefits distributed? (Can it be fairly said that the population as a whole is the beneficiary of an operation which serves directly only a small fraction of the people?) Can those whose direct benefit is unquestioned participate in assuming the capital cost and the possible operating cost? Does the proposed structure provide for the most efficient business and economic structure?

V Stages of Development.

Any competent airport survey sets up a master plan for construction—not all of which should be done at once. The time factor is as important as the space pattern. An orderly sequence of development, provided for in advance, has advantages too obvious to require discussion.

VI A Financial Program

Only after all of the foregoing factors have been isolated and examined so that basic decisions can be made is it possible to set up a rational financial program based on capital cost, amortization, maintenance and operating expenses, and firmly established schedules of revenue and charges. It is difficult to imagine sound businesses considering the establishment of branches or outlets at an airport without reasonable assurance of a permanent range of charges which will be assessed against them. This applies equally to the airlines and other aeronautical users of the airport, and the commercial enterprises which are expected to contribute materially to the financial success of the undertaking.

Unless the venture is presented as a whole and the picture based on fairly accurate capital and financing costs, maintenance and operating expenses, and revenue potentials, many desirable tenants or investors will not be attracted to the program.

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EDITOR'S NOTE: *For a more detailed discussion of Airport Programming by the author of the foregoing analysis, and articles on Plane Maintenance Plant, Hangars, and Parking for Personal Planes, the reader is referred to* The Architectural Record *for April* 1947.

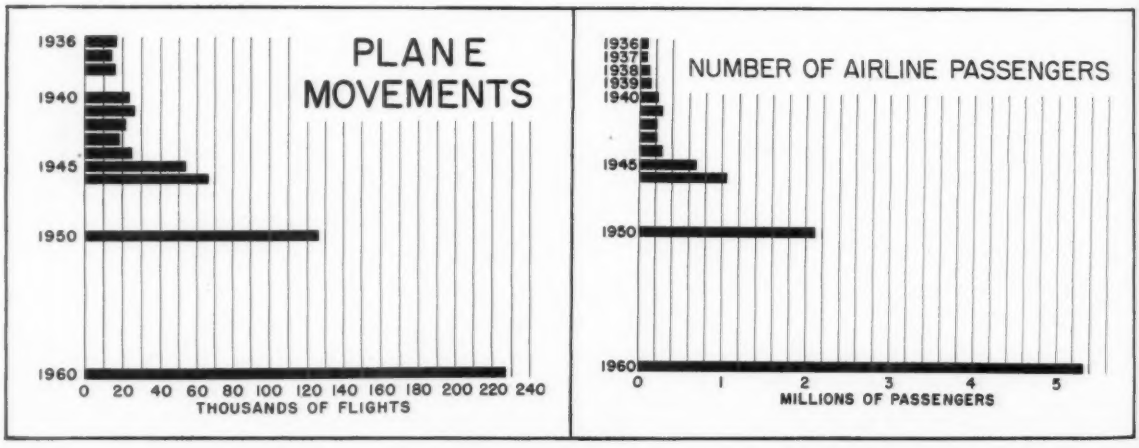
## *Beware of "Cheap" Runways*

ADEQUATE rather than cheap runways are today's need if aviation intends to avoid the pitfalls experienced in early-day highways. This was pointed out by Alfred J. Ryan, Denver Consulting Engineer, in a discussion before the Spring meeting of the American Society of Civil Engineers.

"In the development of highways, the first facilities were trails following the paths of least resistance," Mr. Ryan said, "and real highway engineering did not come into being until the public realized that the cost of vehicle maintenance and loss of time and life was dangerously high."

To design any airport correctly, Mr. Ryan said, requires a knowledge of the fields of soil mechanics, pavements, drainage, utilities, service transportation, and, in most cases, building construction.

Many small communities would be better off with an undeveloped open field which could be used by small private aircraft under favorable weather conditions than with an airport so developed that it not only will not accommodate aircraft of any material size, but can not be economically expanded to meet this condition.



MUNICIPAL GOLF COURSES OVERFLOW WITH SPORT ADDICTS—

# Are More Links Necessary?

By SYL POINTKOWSKI

THE almost white, mist-bound sun had hardly risen in the eastern sky, but already there were a dozen people in line before the locked clubhouse doors. Presently, the groundskeeper arrived and began his task of acting as clerk, cashier, and general manager for the early arrivals on a typical municipal golf course.

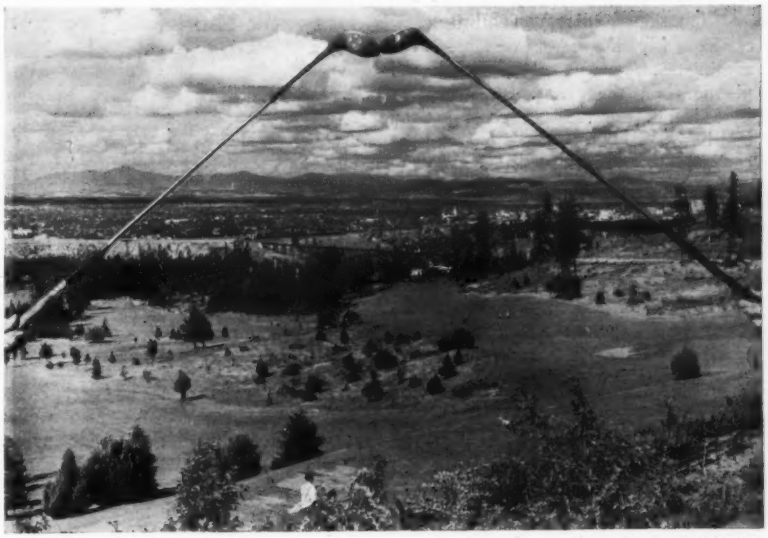
Dawn on a Sunday during the season always finds the golfers waiting impatiently to beat the mob of club-swinging recreation seekers who number about 2,350,000 in this country. These veterans prefer the inconvenience of early waking to the disheartening three-hour wait for a chance to tee off later in the day at an average municipal course. At that time strangers are sent off in foursomes. Pauses are long and frequent between strokes. Between holes, especially the short ones, the delays are as annoying as at the first tee.

"Why don't they build more golf courses?" someone grumbles. "We're paying enough taxes."

## Are Public's Needs Considered?

Are the public's needs really being considered with respect to this increasingly popular sport? According to surveys by the magazine *Golfdom*, there are about 3,300 private links throughout the country, with another 1,260 courses open to non-members on payment of a greens fee. Municipal, county, and state courses total more than 700. Private courses cater to some 570,000 players; links open to the public serve 580,000, and municipal courses are used by 383,000. An additional 204,000 participants are women, and about 160,000 are "juniors" or persons under twenty-one. There are also estimated to be about 450,000 "casual golfers" not included in these figures, composed of individuals who play less than ten rounds per year.

The number of courses varies with the population in each of the states. New York leads with 431 links—43 municipal, 103 public, and 285 private. Golf, no longer a sport reserved for the rich, is played almost everywhere by everybody. Aside from the moderate fees, usually under a dollar, golf balls and tees are the only items which must be purchased. Clubs and other equipment can be rented at most courses.



COURTESY OF U. S. GOLF ASSOCIATION

**The Indian Canyon Golf Course, owned by the City of Spokane, Wash.**

Not only has golf arrived, but it is here to stay. Undoubtedly, the taxpayer's grumble will be repeated whenever there is a waiting period at the tee. But his question is being considered in detail by many recreation authorities.

The first practical observation is the gradual encroachment, with the growth of cities, of real estate developments on golf courses. Many private clubs were sold before the war to realty interests and during the war to the government for hospitals and rest areas.

A golf course worthy of the name is expensive to buy, maintain, or build. For instance, roughly 150 acres are needed for an 18-hole course. If economy is a factor, as it will be in municipal construction, reclaimed land probably will be sought, such as former marsh areas or swamp land. In these areas, though, top soil is the first requirement, and it may cost up to $5,000 an acre for earth for filling and seeding

Even for larger cities, such costs become prohibitive in relation to other needs of the taxpaying public. Yet recreation is an essential in the life of the community. Beaches, parks, pools, tennis courts, bicycle lanes, bridle paths, and skating rinks are no more important to the neighborhood than is the golf course to the golfer, who, he insists, has a right to golf as much as his neighbor has a right to swim or to ride for hours over costly scenic parkways.

In New York City, under the Park Department, golfing has been revitalized. The city's ten courses now are self-supporting to the extent of producing between $250.000 and $300,000 annually. Permits were standardized eight years ago at $5.00 each with a 10-cent fee for weekday play. To discourage overloading on holidays, this rate was increased to 50 cents. Single-day players pay 75 cents and on Sundays and holidays an extra quarter. Lockers are available at $5.00 a season; the daily rate is a quarter.

Allowing, for safety's sake, a five-minute headway between foursomes, a good municipal golf course can absorb forty-eight players an hour, and accommodate an average of 600 players daily. With the "breaks" caused by nine-hole shooters, an extra fifty can be added to that number. A method used on one course, to speed up the playing, was to provide two greens on a short hole, spaced at a safe distance.

Perhaps the most formidable argument against further transformation of scarce land for golf courses is the yardstick used by the recreation planners themselves. A zoo area, a beach or pool, or a picnic lawn accommodates 100,000 persons in a 200-acre zone—or about 1,000 people per acre. The same measure applied to golf closes all arguments in congested areas. The game provides recreation for but four persons per acre.

# Planning As An Aid to Municipal Administration

**This article and the one by Dr. Louis Wirth on the facing page are excerpts from talks delivered at the National Planning Conference of the American Society of Planning Officials in Cincinnati, on May 5, 1947.**

By W. R. KELLOGG
*City Manager and Member City Plan Commission Cincinnati, Ohio*

THERE are vital differences in the functions and responsibilities, and consequently in the temperament, of administrators on the one hand and planners on the other. It is healthy indeed that the realism, conservatism, and hard-headedness of the one and the enthusiasm, optimism, and vision of the other act as mutual checks and balances.

Much of what we today see in our cities that discourages and disheartens us at times in relation to the welfare of our people, their health, their economic and spiritual well-being—much of all that is bad in our urban centers—could have been prevented or at least ameliorated, had our planning in the past been as extensive as our progress and expansion. Also, had there been more and better planning in the past, the task of the administrator would today be lighter and his headaches fewer.

If it is the function and good fortune of the planners that they keep their eyes and minds to the future, it is in an equal sense the function and—I may say—the hard luck of the administrator that he must carry not only the burdens of present problems but the onus of past mistakes.

### Erasing Past Mistakes

Much of an administrator's time, and much of the financial resources of every municipality, are devoted today to applying the eraser to the results of the short-sightedness and lack of vision which attended the building of our cities without benefit of adequate and sound planning. Moreover, in this task of erasing, we are as yet absolutely nowhere unless the tide of interest in all angles of city planning, now sweeping the country, is a harbinger of more rapid progress to come.

City government is, at its best, a complicated mechanism. It is a teeming network of activities and responsibilities in which the vital functions performed affect every home, store, office, institution, factory—in addition to every living being—in the city.

It plays a stellar role in the community life. Problems of business and people, transportation and industry, education and culture, recreation and health, delinquency and crime—all converge upon the city government for interpretation into action and civic policy.

The government of the city also renders indispensable services to the very existence of any metropolitan or urban center. It protects life and property, provides water and other essential utilities, disposes of sewage, guards public health, prevents epidemics, controls traffic, and regulates and facilitates commerce and industry.

### Assistance in Planning Needed

So, as I say, it is a complicated machine. The administrator who would not, or does not, seek and welcome all the help he can get—including that of all planning officials—would, in my opinion, have missed the whole point of his place and his province in a democratic community. Just to make that sentiment complete, I might say parenthetically that *he wouldn't last long, either.*

Your administrator will always want to know, and his judgment of their practicability depends greatly on his knowing, how much it will cost to effectuate your plans. A plan beyond the resources of the people for whose welfare you plan is not a plan at all. It may be a beautiful dream—I have seen some that really are—it may be eternally *right,* but its value in these circumstances can be best represented by a question mark.

The planner who comes forth with a plan impossible of feasible financing brings to mind only the poignant picture of the little urchin, the slender contents of his piggy bank in hand, pressing his nose in rapture against the display window through which he sees the shiny new bicycle.

Nevertheless, it is a certainty, amply attested to by our own experience in Cincinnati, that plans made in advance of periods of change—and these periods are always facing us—when they cannot for financial reasons be carried out, do help the city avoid mistakes otherwise inevitable, when the time *did* arrive, and when we could afford to put them into effect.

### Functions of Plan Commission

We are extremely fortunate, too, in Cincinnati in that our City Planning Commission has, and deserves, real authority and respect within the scope of its functions. Whatever a planning commission may be elsewhere, here it is not a mere voluntary body, a round table, or debating society. It is the official planning agency of the city. The state law of Ohio, the city's charter, and appropriate ordinances give it advisory powers upon all matters relating to the planning of the city and its future development.

The Commission's principal responsibility is to make a plan of the whole or any portion of the city and contiguous territory which in the opinion of the Commission bears relation to the planning of the municipality itself. This gives it the authority to plan for the metropolitan area. Under the law, the Commission may from time to time amend, extend, or add to the plan. It has other powers allied to these.

No public building, facility, or improvement can be constructed or authorized without the Commission's approval, although—as it should be in a democratic community—the City Council as the representative of the people may overrule its disapproval.

In addition, the Commission may make recommendations to any public authorities or corporations or individuals within the area concerning the location of any buildings or works constructed by them.

Further, the functions of the Commission are to investigate, to study, to advise, and to recommend in all phases of city planning. It does not pass upon actual projects or improvements, nor their construction and maintenance. These are prerogatives of the City Council, the various city departments, and other local governmental agencies. The Planning Commission does not in any way infringe upon their powers.

The Planning Commission may thus be seen as the "experimental laboratory" of the city. Its trained staff conducts extensive surveys, studies, and analyses of every segment of the city's

structure. This is all with a view to arriving at conclusions and recommendations for procedures for orderly and integrated development.

It studies all the functions of the city from an unbiased viewpoint. As the *advisory* co-ordinating agency wherein all planned improvements are assembled and integrated, it does and must necessarily draw upon the experience of all the operating heads and agencies upon whom rests the administrative responsibility.

In Cincinnati, at least, the function of city planning is closely allied with the operating departments and legislative branches. This insures not only the integrity but the effectuation of the plans which are adopted. The facilities of the Commission are of day-by-day service to other agencies of the local government, and a source of continuous assistance to the City Manager and department heads.

# Planning: A Highroad to Freedom and Order

By LOUIS WIRTH
*President, American Sociological Society and American Council on Racial Relations*

IT is the thesis of my remarks that not merely can we have democratic planning but that planning in our age is indispensable to the preservation of democracy. I should like to elaborate the proposition that there is not merely no contradiction between planning and freedom but that planning in the modern age is the one high road to freedom.

Planning involves the conscious selection of goals, the analysis of these goals from the standpoint of the wishes, needs, and resources of the community, with reference to their mutual compatibility, their order of priority, their implications and probable consequences, and the selection of the most efficient and acceptable means for attaining them. Planning thus represents the closest approximation we can reach to collective rational action.

It should be noted, of course, that the rational behavior of individuals does not necessarily result in rational action by the community. Even if each individual member of the community sets his course rationally, it will not automatically result in planned community action. Even if each business firm plans its enterprise, the collective result will not necessarily produce a planned economy. In order that a plan may result from individual rational action there must be organization and coordination of individual efforts and their articulation into a general strategy.

### Planning Without Regimentation

There is, however, a significant distinction between economic planning and a planned economy, between social planning and a planned society. It is not necessary to plan everything in order to achieve the essential goals of an orderly society and of efficient progressive development. . . .

In planning on a community level the control over the general pattern of land utilization, transportation, taxation, zoning, building regulation, public utilities and public services, and perhaps a few additional strategic factors in community development, will be adequate to achieve the essential goals of a good community. Given such a general strategy, both public and private effort will be guided into channels which will lead to the elimination of waste, the minimization of cross purposes and the avoidance of general frustration. In each case, however, it is necessary to select the aspects of life over which control is essential in the light of the goals sought and the indispensable means of attaining them. . .

The planner does not set these goals. Rather he discovers them and aids the community to define them. Having ascertained what they are, and having noted their interrelations and probable consequences, he proceeds to analyze them in order to discover whether they are capable of realization, and by what means, in what order, and at what cost. . . .

### We Want Order—and Progress Too

There is the further and more difficult task before the planner of reconciling the different and sometimes mutually contradictory ends which the same people seek. I suspect we all want order; but we want progress, too. It may not be possible to have both. We all want security; but we want freedom too. The one may be had only at the price of sacrificing some of the other. This raises the related question of the hierarchy of values of a society and the order of priority to be assigned to each of the ends sought. A community which has no water and sewer system might be well advised to postpone the construction of an art museum until these more elementary needs of life are met. It would, to say the least, be somewhat anachronous to encourage a community to spend its limited resources on the erection of a triumphal arch over an unpaved main street. . . .

The planner is not the dictator of the community. In a democratic society he is the servant of the community, enjoying no powers which the community has not given him, and enjoying these only by the consent of the citizenry. . .

The planning process is essential for the creation of the community conditions in which free men can and will do their best to unfold the potentialities within them. And by men, I mean *all* men, rich and poor, white or black, powerful or weak. Without planning, in a complex world like ours, there will be no genuine freedom. Do we want a free and prosperous America? Then let us plan for it now. This is no time for procrastination, for hesitation, for trivialities. We need all the intelligence and resources we can muster. In comparison with the needs and opportunities our acomplishments are meager. Planning has hardly begun to be used.

## *Madison Seeks a City Manager*

AS a result of a referendum vote last fall, the city of Madison, Wis., has changed from a mayor-council form of government to a city-manager form. An acting city manager has been appointed, but the new Council is seeking a candidate on a permanent basis.

The city's population at present is 82,000, with about 125,000 in the immediate suburban area. The Council desires someone with previous manager experience, and there are no restrictions on out-of-town appointments. The probable starting salary is from $10,000 to $12,000 per year, with the appointment to be made before September 1, 1947. The city operates a waterworks system and an airport.

Persons interested in the position should apply to the Personnel Officer, City Council, City Hall, Madison, Wis.

# New Orleans Solves Unique Problems

**Besides providing for adequate water supply and sewage disposal, the city must maintain a comprehensive drainage system.**

EVERY city depends upon its water supply for existence. New Orleans, prior to 1909, had to depend mainly upon water caught from roofs and stored in cypress cisterns until the city's engineers began to capitalize on the new, rapid sand-filter method that had been developed a few years before.

Today their water plant occupies an area of seventy-four acres. It is connected to the Mississippi river by three large intake pipes, two of 48-inch diameter and one of 72-inch diameter. Steam pumps, reminiscent of the days before the modern centrifugal pump, but nevertheless retaining all their old efficiency and close control, lift this water at the rate of 120 mgd to the plant, where it is settled, coaglated, filtered, and chlorinated.

These treating units occupy thirty-six acres and utilize eighteen reservoirs and twenty-eight filters. The water goes first to four primary settling basins with a capacity of 27.6 mg. It then goes to four mixing chambers with a combined capacity of 16.6 mg and then to a series of eight coagulating and settling basins capable of holding 87 mg. After passing through the filters, it goes to two clear-water reservoirs that can hold 15 mg. The twenty-eight filters, with a total area of 40,068 square feet, are capable of handling 112 mg of water per day.

Before leaving the plant, the water receives its final protective application of chlorine. This is received in carload lots of one-ton containers and is stored in a separate building used solely for this purpose. The chlorine is carried from this building to the filter house through underground pipe lines and then passes into the water through automatic chlorinators.

The city also maintains a separate purification plant with a capacity of 4 mgd on the west bank of the Mississippi, to serve that portion of the city known as Algiers. This plant operates by means of electrical power furnished from the main water works plant across the river through a submarine cable. It also has reserve diesel power.

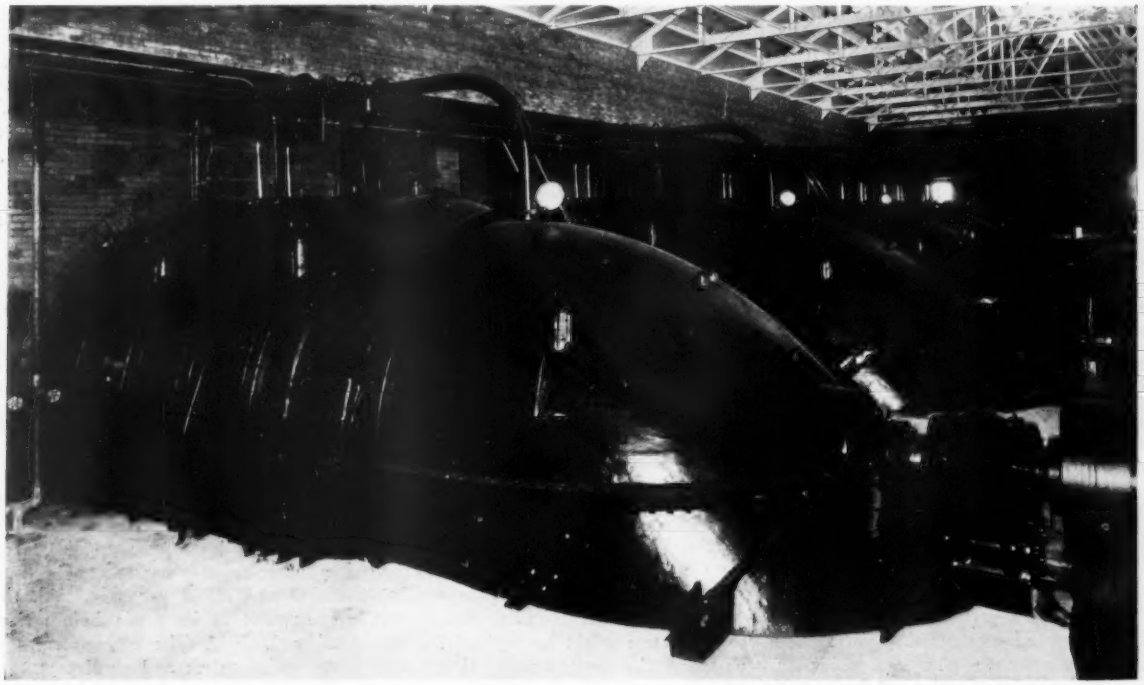
The city has no overhead storage reservoirs, but depends on direct pumping for its pressure, which is supplied by four steam-driven pumping engines, each with a capacity of 20 mg.d. and two electrically driven pumps, each capable of moving 40 mgd, making a total available pumping capacity of 160 mgd. These pumps maintain a constant pumping pressure of 70 psi.

Drainage for New Orleans represents one of its most interesting engineering accomplishments. The average elevation of the city places it below high water in the Mississippi and very close to the high-water elevation of Lake Ponchertrain. Parts of the city vary from 14 feet above to 3 feet below mean tide.

As a result, New Orleans must pump away the large quantity of water coming from storms, sewage, or seepage.

To protect itself from this influx of water, New Orleans built a comprehensive drainage system and has been improving it ever since its construction. Canals convey the water to a set of nine huge pumping stations that discharge it into the tidal-level outfalls.

Originally these canals were wood-lined, but the people have constantly expressed a preference for covered conduits and later ones were built in this manner. The largest are 25 feet or



**These big pumps spell the difference between a well-drained, habitable New Orleans and a muddy swamp. Designed by General Superintendent A. B. Wood to meet the city's specific needs, now they are used the world over.**

**New water and sewer extensions are examined by (left to right) Superintendent Wood, Mayor deLesseps Morrison, Engineering Aide Charles Wiemers, Jr., and Division Engineer M. T. Ducross.**

more in width and, when running full, contain 9 feet or more of water.

To keep the water moving in these canals and in their tributary drains, the city has probably the greatest aggregation of low-lift pumps that has been assembled anywhere within an area of that size. The aggregate storm drainage pumping capacity is over 16½ billion gallons per day—enough to empty a lake a mile wide, 8 miles long, and 10 feet deep in 24 hours.

The pumps that perform this herculean task are also a New Orleans product, invented and perfected by the Sewerage and Water Board's superintendent, A. B. Wood. The pumps, built roughly in the form of a huge siphon, have screw impellers located in the upper portions of the tube. They are primed by vacuum pumps that exhaust the air and draw water into the upper portion of the siphon-like tube. The impellers operate in a specially constructed chamber that is accessible, while the pumps are operating, through a hatch that permits an operator to inspect the impeller shaft.

These pumps can remove water from ordinary storms as fast as it falls and can handle even exceptional storms.

The city handles sanitary sewage through a set of separate sewers. This portion of the system has over 606 miles of mains, with more than 13,000 manholes giving access to the sewers. Ten lift stations move the sewage to the main pumping stations. All are electrically driven and automatically operated. They require no attendance other than a periodic visit.

The city has four discharge stations that pump the sewage, untreated, into the Mississippi river well below the city, where it is soon swept into the Gulf of Mexico. The pumps discharge a total of 530 mgd, but even this amount has no great effect on the vast volume of water that is carried by the Mississippi.

The New Orleans Sewerage and Water Board has an interesting organizational background. Created by an act of legislature in 1899, it is composed of thirteen members: the Mayor, the Commissioners of Public Finances, Public Utilities, and Public Property; two members of the Board of Public Debt Liquidation, and seven taxpaying property owners appointed by the Mayor. Each of these members serves for an overlapping term of 12 years.

The Sewerage and Water Board derives its income from three sources—taxes, water rates, and an annual budget from the city's general fund. Last year each of these yielded the following amounts of revenue:

| | |
|---|---|
| From taxes | $2,188,000 |
| From water rates | 2,005,000 |
| From city budget | 108,000 |

The taxes consist of a special two-mill levy and half the surplus of a 1% debt tax. The income from these is dedicated first to the meeting of certain bond obligations; the residue, thereafter, is restricted to improving the three systems of waterworks, sewerage, and drainage. Since 1942 the two-mill tax has been used exclusively for improvements of the three systems, and it is expected that it will be used thus until 1991.

Revenue from water rates is specially earmarked for operation and maintenance purposes. By law none of these funds can be diverted. The sum given by the council from the city budget partly pays for the operation and maintenance of the drainage system. From 1899 to 1939 the total income from this source has been $76,000,000.

The Sewerage and Water Board operates on a cash basis. It cannot legally anticipate its revenues, create any debt or enter into any obligations, except authorized bond issues in excess of cash on hand.

**The New Orleans Mayor looks over the water treatment plant with Superintendent Wood, left, and Engineers L. Frantz and Frank Hass, right.**

# A Ragweed Control Program

**Experimenting with standard park equipment in spraying 2, 4-D on ragweed. Multiple-nozzle gun, left, is more effective.**

By **PHILIP GORLIN**
***Health Inspector***
***In Charge of New York City Cooperative Ragweed Control Program***

SEVERAL years ago Dr. R. P. Wodehouse, world famous botanist and pollen allergist, remarked that the most practical way hayfever can be prevented is by controlling the environment. It is the airborne pollen of many trees, grasses, and weeds which causes the seasonal discomfort and misery to millions of individuals in this country. This malady has increased steadily in prevalence since 1890, until now it stands first among the non-fatal chronic diseases, affecting more than 5% of our population. About 65% of the total hayfever sufferers in the eastern part of the country are victims of late summer and fall hayfever and nine out of ten of these are affected by the pollen of the common and giant ragweeds. It is obvious, therefore, that the ragweed menace assumes the aspect of a major public health problem.

The ragweeds are prolific pollen producers. As much as fifty pounds may be the annual crop from one acre of the giant variety. Much of this pollutes the air in the immediate vicinity but some is picked up by air currents and is carried to high altitudes and for great distances. It is fortunate, however, that the concentration of pollen in the air decreases inversely with the square of the distance from the source. Furthermore, it is not necessary to eliminate all pollen from the air in order to bring relief to the great majority of hayfever sufferers, since concentrations below twenty-five pollen grains per cubic yard of air in twenty-four hours usually do not bring about allergic reactions.

After many years of investigation and research in hayfever prevention and treatment, allergen injections are still the best the medical profession can offer. Such palliatives as benadryl, pyribenzamine or anthallon usually give only temporary relief and are not effective in all cases. Hayfever "resorts" are no longer the havens they formerly were considered to be, even though some are still comparatively free from ragweed.

It was not until 1946 that economic control of ragweed on a municipal scale was first demonstrated. Using the newly developed plant hormone, 2,4-dichlorophenoxyacetic acid, now commonly called "2,4-D," New York City eliminated 3,000 acres of an estimated 10,000 acres of ragweed during a six-week period, employing a variety of converted power spraying equipment. Although other factors may have contributed, the pollen count in the city was unusually low last summer, and a program is being planned this year to eliminate the remaining ragweed acreage within city boundaries. Interest has been aroused in surrounding municipalities, and the cooperation of many of them is being secured in the anti-ragweed campaign. A course was conducted at New York University on ragweed control which was attended by municipal officials, public-health officers, civic leaders, and members of community organizations from municipalities within a 50-mile area of the city.

## Steps in the Program

As soon as the municipal and health authorities in a community decide to develop a hayfever prevention and ragweed control program, a committee of capable persons should be selected to draw up the plans and coordinate the activities of the various component units of the program. Such a planning and coordinating committee might consist of a health officer, an agricultural specialist, and a sanitary engineer. A de-

sirable ragweed control program for a large municipality might contain the following suggested activities (smaller municipalities, of course, should do what they can within the limits of their resources):

1. Study and research of hayfever and ragweed.
2. Survey of ragweed infested areas in the community. In New York City, this was done with the assistance of the police department.
3. Evaluation of ragweed control methods and their adaptation to local conditions.
4. Compilation of data from ragweed survey maps and reports.
5. Preparation of a detailed plan of operations.
6. Preparation of cost estimate and budget providing for necessary funds for carrying on the activities of the program.
7. Preparation of specifications for procurement of equipment and supplies.
8. Procurement of supplies and equipment, and conversion of suitable available equipment for weed spraying work.
9. Preparation and distribution of educational material on Ragweed Control and Hayfever Prevention such as exhibits, posters, pamphlets, leaflets, etc., enlisting the aid of educational institutions and civic groups.
10. Planning and conducting adequate training programs for the field and supervisory personnel in the methods and practices of modern weed control.
11. Providing educational courses to the public on such subjects as the "Control of Plants Detrimental to Health."
12. Promotion of the program and enlisting cooperation of communities within an area of 50 miles of the municipality.
13. Providing progress information to the public during the campaign.
14. Supervising the spraying of all the areas included in the ragweed survey.
15. Making periodical field inspections to observe progress and efficiency of work, prepare reports, and recommend necessary corrections.
16. Provide for investigation of serious complaints and for conducting correspondence with the public.
17. Conducting an ecological study of ragweed in the community.
18. Determining the effect of various concentrations of 2,4-D on the growth habits, pollen and seed production of ragweed.
19. Setting up several pollen sampling stations in strategic locations.
20. Correlating ragweed pollen survey data with meteorological and ecological data, using standard methods of measurement.
21. Selecting a suitable substitute cover plant and determining the best method of planting it in areas previously occupied by ragweed.
22. Directing and coordinating the activities of all the cooperating departments, agencies, and field personnel participating in the ragweed control program.

One of the first items to be considered by the committee should be a legal basis for action. If existing laws are inadequate, it may be necessary to implement them or if none exists—to enact anti-weed legislation. A desirable ordinance should provide for elimination of weeds causing hayfever before the period of flowering and pollination, and should not be too cumbersome to be enforced. "Hayfever weeds cannot be eliminated by legislation alone," the New York City Health Commissioner, Israel Weinstein, pointed out, "but adequate weed control laws are a necessary adjunct to any positive ragweed control and hayfever prevention program."

A technical plan of operations can then be drawn up. A survey of the ragweed infested areas should then be made, and the data charted on maps. These maps and data will facilitate the planning of the field operations. Both public and private properties should be included in the survey.

## Spraying with 2, 4-D

Ragweeds can be effectively and economically killed by spraying them with an aqueous solution containing 0.1% of 2,4-D acid from the time they are several inches tall until the flowers begin to develop. In the vicinity of New York City, this period would be from the last week in May until the first week in August. Any type of spraying equipment can be employed, and nozzles designed to produce a coarse fan-type spray are recommended for application of the chemical in cities and areas close to desirable vegetation. A disc orifice of .078" and pressure of 75 to 100 pounds per square inch at the spray gun nozzle of a power sprayer would be adequate for this purpose. Finer atomization of the herbicide in applications to weeds in certain cultivated agricultural areas, such as grain fields, would require the use of specially designed power sprayers or dusters. When spraying with 2,4-D, the spray and mist should be kept away from vegetables, shrubs, trees, flowers, and other ornamental plants.

Various formulations of 2,4-D are available in powder, tablet or liquid form under many different trade names at agricultural and garden supply stores. The recommendations of the manufacturers should be followed carefully. The cost per pound of 2,4-D content may vary from about $2.00 to more than $27.00 depending on the packaging and the ingredients of the product, which may contain as little as 2% or more than 85% of the acid equivalent, with or without wetting agents, spreaders, stickers, or emulsifiers. The rate of application per acre ranges from 1¼ to 2½ pounds of 2,4-D acid or from 1 to 2 gallons of diluted spray per square rod (272¼ sq. ft.). The amount of herbicide required will depend on the acreage to be covered, the height and density of the weeds, and the 2,4-D content of the formulation used.

For treating weeds on vacant lots and on other neglected uncultivated areas in towns and cities, each municipal weed spraying unit should have:

1. A 300 to 600 gallon power sprayer, equipped with a 15 to 35 gallons per minute pump, mounted on a truck or on a 2 or 4 wheel trailer.
2. Two 100 feet lengths of ½" or ¾" heavy-duty rubber hose, in 50 feet sections, with couplings and hose reels.
3. Two single or multiple nozzle weed guns, scythe or sickle, assorted spare parts and accessories.
4. One, three, or five gallon knapsack sprayer, either the compressed air type or a lever-operated continuous action type.
5. A truck or a suitable traction vehicle such as a command car or a weapons carrier.
6. One chauffeur or auto-engineman who should act as crew chief and keep records.
7. Two spray-gun operators, one of whom should operate the auxiliary knapsack sprayer whenever necessary.
8. One general assistant or laborer to help with the hose and use the scythe or sickle in such problem areas where spraying with 2,4-D should be avoided.

It is recommended that equipment used for 2,4-D spraying should not be used for the application of insecticides to fruit trees, vegetables, or ornamentals, since it is very difficult to remove all residue of 2,4-D from the tank and hose. Recent experiments have indicated, however, that rinsing the equipment several times with a 1% suspension of activated charcoal after thorough scrubbing with hot water and a good detergent may render the 2,4-D sprayer harmless to vegetation.

The number of power-spraying units required will depend on the amount of work a crew can do in one day, the size and distribution of the ragweed areas and the duration of the field control operations. It was found that a spraying crew could do from one acre of small scattered areas to about six acres of large, open areas. About 2½ acres per day was the average performance in New York City during the 1946 ragweed control demonstration.

## Public and Private Areas

It is essential that the work be carried on or directed and coordinated by the municipality, and that all ragweed areas, whether public or private, be treated alike. Only such areas as fenced-in vacant lots, railroad rights-of-way, fence rows, and cultivated fields will present special problems. Notices should

**Giant ragweed may grow to this height.**

Ragweed Control - A PUBLIC HEALTH PROBLEM
A DEMONSTRATION BY THE CITY OF NEW YORK
WILLIAM O'DWYER
PROBLEM and CONTROL
COOPERATIVE PROGRAM
It Can Be Done!
1946 DEMONSTRATION

**The New York City exhibit booth at the 1946 convention of the American Public Health Association at Cleveland, Ohio.**

be sent to such property owners urging them to cooperate with the authorities in compliance with the anti-weed ordinance. Proceedings may be initiated to collect the cost of eliminating noxious weeds from owners of private properties who have been negligent in cooperating, but this should not interfere with, or impede, the progress of control operations. If pollination is to be prevented, all the ragweed should be sprayed with 2,4-D before the flowers begin to appear.

The control of ragweed in cultivated agricultural areas is not as hopeless a task as it may seem. With the help of the County Agricultural Agent and by following the recommendations of the local experiment station, ragweed can be eliminated in a short time. By adhering to accepted agronomic principles such as crop rotation, cover cropping, clean cultivation and soil conservation practices, supplemented by judicious use of 2,4-D or dinitro herbicides, the farmer will be able to keep the weeds under control and at the same time realize economic dividends.

In order to prevent erosion and guard against the return of the ragweeds, it is desirable to introduce a suitable ground cover plant in the treated areas. Such a plant should be preferably a short growing, hardy, spreading, perennial plant which can be kept under control, and which would not cause hayfever. The selection and method of introduction of such plants will require further study and experimentation. The ragweeds are pioneer, noncompetitive plants which usually take possession of eroded or disturbed soil. Gradually, they are replaced by more aggressive perennial plants and grasses, followed by shrubs and trees. Fortunately, the selective action of 2,4-D kills the weeds but allows the common grasses and some other resistant plants to live, thus helping to establish a natural soil cover.

Once the project is organized and the equipment procured, the annual operating cost for controlling ragweed should be comparatively low. The ragweed areas to be treated will grow fewer each year. Several years of intensive effort probably will bring the enemy under control. A program of vigilant maintenance thereafter will guard against the return of the ragweed and safeguard the health of hayfever sufferers.

Giant Ragweed

Common Ragweed

**NEW YORKERS**

**RAGWEED CAUSES HAY FEVER**

**YOU CAN HELP**

**DESTROY RAGWEED**

**BY CUTTING OR SPRAYING WEEDS ON YOUR PROPERTY**

**SPRAYS CONTAINING 2,4-D ARE MOST EFFECTIVE**

***KEEP SPRAY AWAY FROM VEGETABLES, SHRUBS, TREES OR OTHER DESIRABLE PLANTS***

**The LAW requires owners to DESTROY RAGWEED**

DEPARTMENT OF HEALTH
CITY OF NEW YORK

WILLIAM O'DWYER
Mayor

**These posters were distributed throughout the city in the 1946 campaign.**

# Memorial Recreation Center To Have Everything

A COMMUNITY building in simple modern style and planned on a multiple-use basis has been designed for a committee of manufacturers and business men of Burlington, N. C., by the F. Ellwood Allen Organization, Park and Recreation Planners, New York, N. Y. The plans call for a two-story fireproof building.

An important part of this community center, as the plans indicate, will be the basement. Here there will be a swimming pool 30 by 75 feet, which will open out on a 75-by-100-foot bathing terrace; eight bowling alleys, a large youth-activities room, a large club room, a hobby room, a kitchen, men's and women's locker rooms and toilets, a first-aid room, a snack bar, equipment and boiler rooms, and fuel and storage space.

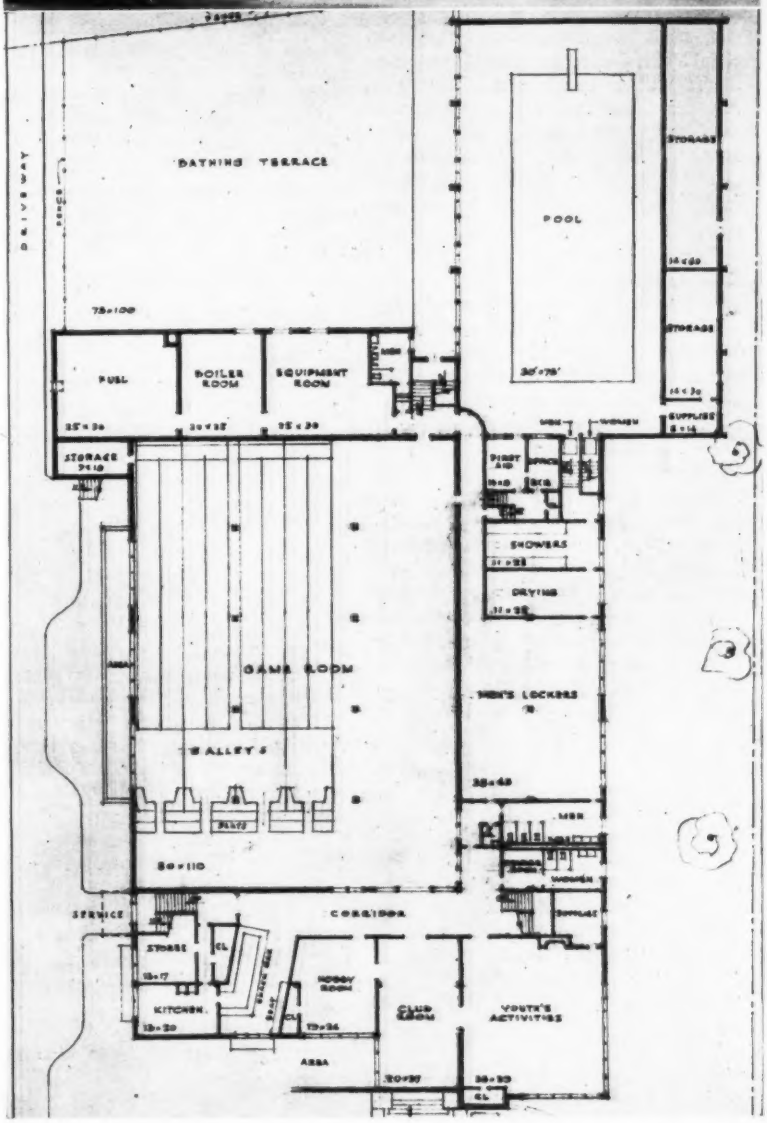
On the first floor will be a multiple-use room, 80 by 100 feet, suitable for a wide variety of indoor games and meetings. It will be equipped with folding tiers of seats; a stage 25 by 57 feet with dressing rooms; a balcony above the swimming pool with 250 seats; a large lobby, a lounge, a kitchen, a snack bar, a club room, showers, lockers, a coat room, a conference room, the director's office, and storage rooms.

The second floor will contain three club rooms, a projection booth, radio rooms, the upper parts of the swimming pool, another multiple-use room, and stage and storage facilities.

In a detailed report to the Burlington sponsoring committee, the Allen Organization lists thirty-one types of sports and games, twenty kinds of social activities, seventeen varieties of conventions and gatherings, and thirty-one types of musical, dramatic and art activities that are feasible in the building. The Organization's report shows itemized object and functional budgets which indicate an annual operating and maintenance cost of approximately $43,000, with revenues from charges and fees estimated at $26,000.

F. P. Platt and Brother, New York, N. Y., and William Henley Dietrich, Raleigh, N. C., are the consulting architects.

The officers of the Burlington Community Building are: Allen Gant, president; Reid Maynard, secretary, and M. B. Smith, treasurer. Members of the building committee are: W. C. Elder, Chairman, Walter Williams, Roger Gant, J. E. Baker, Ralph Scott, and H. F. Mitchell.




**The Burlington, N. C., memorial recreation center and the basement plan.**

# The Case for Urban Expressways

**Long-range planning of adequate highway facilities will save many cities from stagnation and decay.**

By THOMAS H. MACDONALD
*Commissioner of Public Roads*
*Federal Works Agency*
*Public Roads Administration*
*Washington, D. C.*

THE opposition that has developed in several cities to the construction of expressways and other boldly planned highway improvements is not surprising.

Between 1890 and 1916, when early good-roads advocates and far-sighted civic leaders were campaigning to get the farmer out of the mud with gravel and macadam roads, they were met with apathy and inertia. Most states and communities preferred mud roads to the "luxury" of stone or gravel surfaces that cost $5,000 or $6,000 per mile.

From 1916 to 1925, when federal-aid and state systems were being designated and improvement begun, there was again strong opposition. The program was too big and too costly. There was no real need. In the early twenties, a prominent economist actually asserted that the country could not stand the drain that highways would impose on its resources.

During the early period, farmers objected to building roads for city autoists, and the non-owners of automobiles in cities objected because they saw no reason for being taxed for roads for farmers. These arguments subsided as our states and their subdivisions eventually decided that they could not live and prosper without improvement of rural roads.

It seems that history is to repeat itself about express highways for our cities. A number of our cities are debating an important question: "Shall we build highways which will enable traffic to move into and through the city quickly and safely, or shall we try to get along with things as they are?"

The decision they reach will have a far-reaching effect upon business and industrial expansion during the next ten years.

Traffic congestion on main rural highways and city streets was a serious problem long before the war. It had become so serious, in fact, that President Franklin D. Roosevelt appointed the National Interregional Highway Committee to study conditions and to suggest a solution.

In its report to the President in 1944, the committee recommended, among other improvements, the development of an interstate highway system consisting of modern highways which would connect principal cities and industrial centers throughout the country, and the construction of multiple-lane, controlled-access expressways in both urban and rural areas where the volume of traffic justified this type of highway.

The Interregional Highway Committee's recommendations were widely approved by state highway officials and municipal authorities. Legislation giving effect to the recommendations was included in the Federal Aid Highway Act of 1944.

### Traffic Increases

However, traffic has increased much faster than we had expected. Late in 1946, the load on our major highways exceeded the records for 1941, the previous peak year, despite the fact that approximately 1,800,000 fewer cars were in operation. A few months after the end of the war, traffic reached a volume that had not been anticipated for at least five years.

Traffic generally tends to avoid congestion if it is at all possible to do so. Cities that ignore this obvious fact and refuse to modernize their arterial routes will pay a heavy price in loss of business and depreciation of property values in central business districts.

One of the most important purposes of the current highway program is to unsnarl urban traffic tangles as quickly as possible by providing facilities commensurate with traffic requirements. This purpose will be defeated if city officials and other local authorities spend years in debating whether the need for an expressway through the city warrants the cost, or whether this thoroughfare or that thoroughfare should be developed as a controlled-access highway.

Objections raised by opponents of expressway plans are based upon the contention that (1) the width of the right-of-way required for an expressway necessitates razing a large number of dwellings at a time when the city is in the throes of an acute housing shortage; (2) depressed sections of the expressway would be "big ditches" which, in effect, would disrupt the customary activities of the community by creating a barrier between neighborhoods, and (3) it would be less costly to widen streets which, if moderately improved, would serve present traffic needs. The loudest objection is that express highways cost too much.

These objections can readily be answered by anyone who is familiar with expressway design and has had an opportunity to study the service value of controlled-access highways built before the war, such as the expressways in and around New York, the Merritt Parkway in Connecticut, the Davison Expressway in Detroit, Chicago's Lake Shore Drive, and the Arroyo Seco Freeway out of Los Angeles.

Admittedly, an expressway through a densely populated area does involve razing numerous buildings, including many dwellings. In most instances, routes selected for expressways, as they approach the center of the city, pass through "blighted" sections where property values are low, and most of the buildings are of the type that should be torn down in any case, to rid the city of its slums.

### Housing First

On the other hand, *no matter how urgently a highway improvement may be needed, the homes of people who have nowhere to go should not be destroyed.* Before dwellings are razed, new housing facilities should be provided for the dispossessed occupants. This question of housing should be accepted as one of the major planning problems when a city decides that it needs and wants an expressway.

It is not true that depressed expressways are "big ditches" or barriers between neighborhoods. Overpasses at selected street intersections are a salient feature of expressway design. These overpasses, by separating through traffic from local cross movement and eliminating the need for stop-lights, tend to speed up the movement of local traffic on cross-streets, and thus increase the ease of communication and business interchange between adjacent neighborhoods.

As to the contention that express-

ways are too costly, and that it would be cheaper to widen existing thoroughfares, there is much that could be said in rebuttal.

Widening streets in central business districts where property values are high is expensive and usually is not practicable. At best, this plan is merely an expedient which may lessen traffic congestion temporarily, but it does not strike at the root of our troubles — the traffic conflicts at street intersections and with parking vehicles.

## Traffic Counts

Actual counts of traffic on express highways and on city streets when being used at or near full capacity show remarkable differences. A 12-foot traffic lane of an express highway will accommodate 1,500 vehicles per hour, and a speed of 35 miles per hour is possible. Under particularly favorable conditions as many as 2,000 vehicles per hour may be accommodated. Counts have been made on a large number of city streets. On 35% of them the capacity was between 300 and 400 vehicles per hour of green light per 10-foot traffic lane. When traffic lights were set 50-50, not more than 200 vehicles passed over each lane each hour. For 67% of the streets the capacity did not exceed 500 vehicles per lane per hour of green light, or 215 vehicles per hour of actual time. The maximum traffic flow on a city street where all possible measures had been taken to increase the flow was 1,400 vehicles per lane per hour of green light, or 600 vehicles per hour of actual time. Few examples of this kind were found.

The service efficiency of a traffic lane on an express highway is from eight to ten times that of a traffic lane on ordinary city streets. This statement relates only to numbers of vehicles accommodated and does not take into account savings in time and operation costs. Traffic studies and construction costs indicate that it will be far more economical to build expressways for large traffic volumes than to try to serve a growing traffic through street widening or other expedients.

Expressways located on routes which skirt the business district, with proper provision for the distribution of traffic, serve a dual purpose. They enable traffic bound for the central business districts to reach its destination quickly, without interference from cross traffic. At the same time, traffic headed toward some other section of the city or a destination beyond the city is removed from downtown streets. This in itself affords a large measure of relief from traffic congestion in the business district.

In several cities people are saying, "We simply cannot afford the cost of executing the plans that have been drawn." Many of them cannot afford the cost of carrying out the entire plan in five or ten years or even longer. This should not prevent them from making a beginning on the only course that will avoid traffic stagnation in the future. The growth and development of the city will then be according to the pattern of main routes that has been decided upon.

An examination of payments by motorists in order to own a car and travel on the highways, and the portion actually going for highway improvements, suggests that it would be good business for them to pay somewhat more for better highway service. The average motorist travels about 9,000 miles a year and the cost of owning a car, keeping it in repair, and buying license tags and fuel, amounts to about $350 annually. If he carries insurance and uses a garage, the cost may be $90 to $100 higher. On the average he pays about $24 in gasoline taxes and $16 for registration. Of these payments, only $30 is assigned for highways. Nine per cent of the $350 expenditure for highway travel, or 7% of a $450 expenditure, is for a road surface on which to travel.

Payments for the vehicle and for the surface on which to use it seem out of proportion. An increase in the contribution for highways would certainly result in reductions in expenditures for gasoline, tires, and repairs. The greater safety of divided highways, free of cross traffic, would save large losses from accidents. The value of the saving in time of highway user and lessening of tension in driving is difficult to estimate, but it would certainly be large.

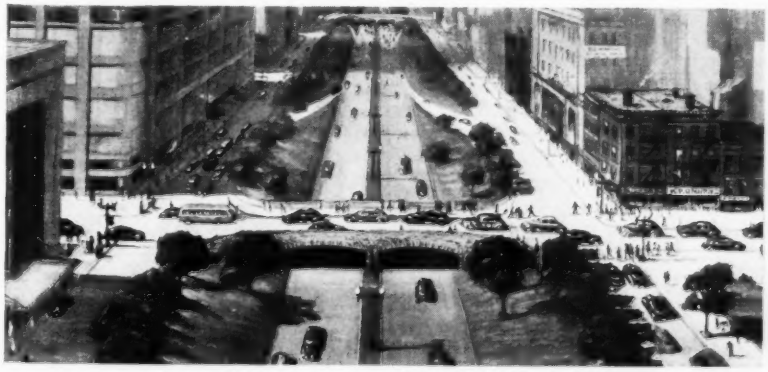
Considering these various factors and the value of safe and rapid transport to business, the question for our larger cities to consider is not can they afford express highways, but how can they possibly afford to be without them.

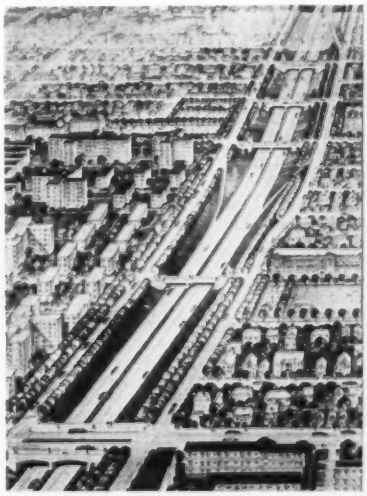
When we plan major highway improvements, we should think in terms of roads that will serve the public ten and twenty years from now. These roads, developed with vision, will do much to stop the decay of our cities at their centers and prevent the attendant decrease in property values. They will help to check the accelerated growth of blighted areas, which are the product of traffic congestion, lack of planned land use, and the failure to create attractive opportunities for the investment of private capital.

The redevelopment of our urban areas is a whole book within itself, and highway planning is one of the most important chapters. What is or is not done will affect every property owner in concentrated population and industrial centers.

**Right: Design for depressed section of proposed John C. Lodge Expressway in Detroit, showing parallel service roads at grade for local traffic and bridges at intersections for cross-traffic.**

**Below: Sketch showing the general features of a desirable design for a depresssd express highway in a city.**





# The City Tells Its Story

By HENRY DAVIS NADIG
Director of Public Relations, Regional Plan Association

## A municipal PR ordeal is in process

MUNICIPAL public relations in the United States, I venture, is going to pass through much the same kind of critical period that marked the early growth of the city manager movement.

And just as you saw that the trials and errors, the successes and the failures, the plaudits and the criticisms only serve to refine the concept and purify the practice of city management, so very likely you will see the advent of the municipal public relations officer bring its own peculiar ordeal by fire in the furnace of official action and in the caldron of public reaction.

There must be a clear-cut concept of municipal public relations policy, and the successful passage of this concept through the ordeal to its rightful place in local government seems both essential and inevitable in the continuing development of the American city. You cannot measure what it will mean (as some may want to do) wholly in terms of the fire and ice of the debate bound to arise; nor can you count it solely in the cold dollars and cents of municipal economics.

But you can look forward to weighing the gains best in those most priceless of municipal values—a more intelligent community spirit, a healthier and neighborlier civic atmosphere, and a greater awareness of the inter-responsibility of government and people. These will evolve as a result of the tangible and visible evidence of good public relations work by your municipality.

### Beginnings Seen

The early stages of the ordeal of municipal public relations are already apparent. You may appreciate this fact, now that you think of it, from some of your own observations. You've seen the hiring of experts to prepare and present publications; you've known of newspapermen cooperating with officials, giving time and talent to municipal enterprises; you may recall my earlier reference* (May) to the appointment of a public relations firm by a municipality, and you may know of other similar steps that have been taken by local authorities.

These are trials—and, in some instances may turn out to be errors. Yet they count as stages of progress toward the eventual achievement of a sound and generally applicable municipal public relations system.

It will be found, I think, that nothing can take the place of an official local committee or commission and a full-time local public relations officer.

### English Leadership

They seem to be proving this in England. I wish I could give you from personal obesrvation an idea of what's taking place over there. Next best is to pass along to you what I've gleaned from pretty close perusal of some publications forwarded to me by Norman H. Rogers, Assistant Public Relations Officer, National Association of Local Government Officers, at 24 Abingdon Street, Westminster, S.W.I.

Mr. Rogers sent, among other material, a list of municipal public relations officers in England. Do you know how many there are? Thirty-three. That means thirty-three local English municipalities have seen fit to appoint PRO's —most of them on a full-time salaried basis!

Have we anything comparable to this in the United States? Have we any towns or cities or villages or boroughs that have set up a public relations department with a full-time salaried public relations officer to work for a single municipality and that municipality alone? (Toledo seems to have the only setup that anywhere approaches this).*

*Yet coordination in the telling of your city's whole story* is such a logical and practical thing!

By no means exhaustive," writes Mr. Rogers, is the list of duties and functions of PRO's. Yet the thirty-one tasks listed (not all required by any one community) are so broad of scope that together they would test all but the most versatile and experienced PRO—and certainly may well stagger any carping critics crying that a municipal PRO is just a "press agent."

The British expect something from their PRO's and apparently they are getting what they want. That something is not only a good press—which is of prime but not excluding importance. While it is the job of the English PRO's to maintain close liaison with the local press, I detect no sense of the high-pressure tactics that have come to be anathema to newspapermen in this country as a result of plain (and often crass) press agentry, usually of a non-municipal nature.

Among other tasks, these British public relations officers have to be responsible for various municipal publications, organize exhibitions, give lectures, handle the reception of visitors, promote official entertainments, serve as road safety officers, supervise information centers, and do a myriad of other odd jobs—according to the prescription of the specific community being served. One city alone, Erith (pop. 36,000), lists nineteen requirements for its PRO to handle.

Sparking the local PRO movement, quite clearly, seems to be the tireless energy of NALGO leadership.

### PR in Manchester

Probably one of the best illustrations of the growth of public relations consciousness is the transformation that has occurred and is still in process in Manchester, England. According to Terence F. Usher, Manchester Information Officer, writing in the April issue of the NALGO journal, *Local Government Service*, the Manchester Corporation's active interest in the policy of showing the citizen that he's "a partner in the business of local government and joint owner, with others, of all Corporation property and amenities," dates from 1925.

In that year the first popularly-written annual report was presented. From then on the scope of public relations widened, with various new media tried. Observance in 1938 of the 100th anniversary of Manchester's incorporation, a main feature of which was a municipal exhibition, led to the establishment of a Municipal Information Bureau to answer ratepayers' questions. An important center during the war, it has been expanded since, and its sources of information are constantly being revised and enlarged.

Manchester has gone far in the field of municipal publications, simplifying presentation, always improving from experience and unafraid to tackle new ideas in layout. Many years of progress in this phase of public relations are behind Manchester's success in this medium of contact with its citizens.

Of particular significance in Manchester is the handling of press relations. "Reporters are encouraged to see things for themselves—the bad with

* THE AMERICAN CITY for May 1947, pages 82 and 83.

the good—and to form their own opinions, the Corporation being concerned only to see the information they get is accurate," says the Manchester PRO.

And, again, he says: "The policy of the Corporation is to be frank and truthful and to let the facts speak for themselves—information, not propaganda, and as much information as possible."

There are three more points by way of quotes from the Manchester PRO:

Local government officers returning from the Forces take a three-week refresher course in local government, *including public relations.* [My italics.]

Public relations work proceeding and projected is now being considered by a committee of the city council. . . .Projects to be submitted include the extension of municipal publications, and a review of the relationship with the press *designed to improve facilities still further.* [My italics again.]

A public relations officer cannot himself do all the public relations work of a local authority. If he maintains that he can, either he is deceiving himself—and no one else—or his programme is still in its infancy. A full policy embraces every possible link between citizen and authority—from the daily contact over the counter in every municipal office and the spare-time activities of local government officers through their NALGO branch, to the activities of each department, the highly organized municipal information service, the press liaison, the full-scale civic week, and the municipal exhibition. No man can do all this unaided. Officers and departments must combine forces with councillors and citizens to achieve *full* partnership in civic life. [His italics.]

Now I think you can see, in the light of my earlier paragraphs, why I've taken you on this little English excursion. To point up still further:

**1. By trial and error, if not by initial concept and practice, a recognizable municipal public relations policy should develop in U. S. cities.**

**2. Coordination in telling your city's story is logical and practical.**

**3. An arm of local government with full-time PRO is the most effective setup.**

**4. The municipal PRO is not a press agent hired to butter up newsmen or whitewash City Hall foibles, *but one of his jobs is to see that the press gets all the facts.***

**5. American cities should take a leaf out of the British book and realize the wisdom and importance of a working public relations policy.**

## Look Around You

While local authorities in England become awake to the acute need for the development of an active public relations policy and while they proceed to appoint specialists to give full time to public relations work, take a look around your own city and other municipalities with which you are familiar.

Be honest, now—isn't municipal public relations (where you can put your finger on any, as such) handled in a pretty haphazard and sporadic sort of way? Aren't you sometimes really amazed at the lack of conscious design in both council and departmental dealings with elements of public concern? Couldn't you honestly say that in many of our cities there seems to be more design in keeping facts from the people than in opening the book to them?

Hampered as we are by our general municipal ineptitude in public relations, we still produce an occasional coup that smacks of the real stuff of which proper municipal public relations is made. A recent case in point has just been brought to my attention. It illustrates the fact that we have the know-how if and when we want to use it, and it proves that our cities need full-time public relations men in local government.

## A Worcester, Mass., Story

Mayor Charles F. Jeff Sullivan, of Worcester, Mass., is the key figure in the story. It seems that Worcester's sewer plant was virtually ruined by the wastes poured into it during the war years. All sorts of rumors were flying about town as to the condition of the sewer—who and what was to blame, and fantastic tales as to the cost to the city. This situation threatened to rebound to the city's discredit.

To scotch these rumors, and to give the public a first-hand report on the actual truth, Mayor Sullivan invited George F. Booth, Editor and Publisher of the *Telegram* and *Gazette;* M. H. Williams, Executive Editor, and Lincoln W. Stoddard, Associate Editor, to make an official inspection trip with city and state officials. The result was a good explanatory page-one story, and an editorial praising the mayor. This was a smart and effective way of reaching the public by casting the light of publicity directly on the problem. I am told, incidentally, that "if the mayor had tried the usual 'cover-up' methods, the result might have been disastrous."

## No PR—No Heed!

Now if you will read the next to the last paragraph of the editorial shown in the clippings reproduced here, you will find that State Health Department complaints of unsatisfactory conditions at the sewer plant went unheeded by the city for four or five years. There you are! Now—

If a Worcester city government public relations committee and its PRO had been in existence and operating in accordance with the principles of sound public relations policy, they might have (1) saved the City of Worcester much of the two or three million dollars it will cost to rebuild the sewer plant, (2) prevented a lot of headaches in City Hall, and (3) caused the people of Worcester to praise their public servants' alertness to health and welfare instead of blaming them by rumor for neglect.

WIREPHOTOS • INTERNATIONAL NEWS SERVICE

WORCESTER, MASS., TUESDAY MORNING, APRIL 8, 1947 — 20 PAGES — FOUR CENTS

MILLION FOR SEWER

PLANT MUST BE REBUILT COMPLETELY

Council Seeks Loan After Inspection by State, City Officials

By CHARLES E. CURRIER
Telegram Staff Reporter

Worcester will seek permission of the State Legislature to borrow another million dollars to rebuild completely its sewage treatment plant.

This was agreed on by City Council members last night after making an afternoon inspection of conditions at the plant with Mayor Charles F. Jeff Sullivan, State Health Department authorities and local public works officials. The proposal to obtain legislative authority was later approved by the Board of Aldermen.

Telegram Officials Attend

George F. Booth, editor and publisher of the Worcester Evening Gazette and the Evening Gazette,

Progress, But Still a Mystery

The inspection of the city's sewage purification plant by the members of the city government and by state health officials, as planned and it was executed effectively by good idea of Mayor

Mayor... was in order to clear the air of doubts, misgivings, misunderstanding and disagreement as to just what had happened to the plant and just what must be done to repair the damage and meet the requirements of properly safeguarding public health. There was also, of course, the underlying question of meeting these requirements as economically as possible. For this inspection, a time when excavation of crushed stone from a section of one of the big sewage filter beds made it possible for the members of the city government to see the deposits with their

Just why the State Health Department's complaints of unsatisfactory conditions at the plant went unheeded by the city for four or five years is a mystery that may go unsolved. But it is a mystery that will cost the city two or three million dollars.

We cannot escape that fact.

WORCESTER DAILY TELEGRAM, TUESDA

Sewer Fund

Continued from Page One

MAYOR CITES FACTS OF SEWAGE PLANT

There's been a lot of theorizing during the past year as to what is needed at the sewage treatment plant, Mayor Charles F. Jeff Sullivan told inspecting members of the City Council yesterday.

There's been a lot of wishful thinking, many plans and a number of estimates as to what should be done and what should cost, he asserted. The city has conducted all possible experiments and made all kinds of calculations in its efforts to rehabilitate the plant.

But, the Mayor said, these are the facts:

Tells Capacity Needed

The city needs a plant capable of handling 40 million gallons of sewage per day.

Rehabilitation of the old beds won't bring them back to 50 per cent of their former capacity.

Practical experiments prove that the ten-foot depth of sand in the old filter beds cannot be effectively or economically removed, the iron oxide sludge clinging to it.

Need 8 New Filters

Construction of eight new rotary filters in addition to those under construction are necessary to provide the required capacity.

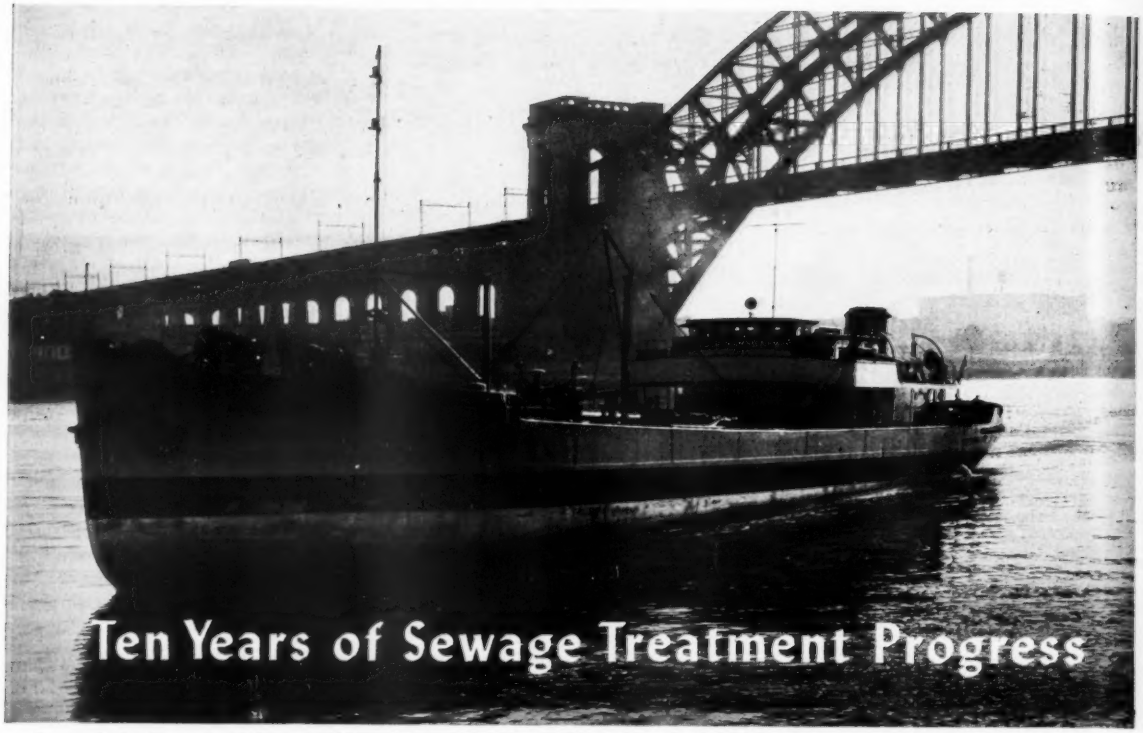
This is the considered opinion of state and local authorities and representatives of a qualified engineering firm.

Materials in the old beds can be used in the construction of the new filters.

Worcester has been given until Nov. 1 of this year to get its plans for meeting state requirements under way.

**Mayor Sullivan of Worcester, Mass., put the public in the know when rumor threatened discredit to the city. He used top newspaper media to throw the light of truth on sewer plant conditions.**

**Worcester, incidentally is fortunate in having one of the best newspapers in New England. With the *Telegram* on the alert, it wouldn't be surprising some day to see Worcester take the New England lead in official municipal public relations.**



# Ten Years of Sewage Treatment Progress

**Part of the Bureau of Sewage Disposal's navy transporting the sludge of New York City sewage plants out to sea.**

By NATHAN I. KASS, *Chief*
*Bureau of Sewage Disposal Operation*
*Department of Public Works*
*New York, N. Y.*

TO EXAMINE the progress made from 1936 to 1946 in the treatment and disposal of sewage in New York City, it is necessary, as always, to examine the past.

The somewhat obscure records show that the first common sewer was built as early as 1696. For almost a century and a half thereafter, the development of the sewerage system in New York was exceedingly slow.

Extensive construction and use of sewers actually began after the introduction of the Croton water supply about the middle of the 19th century, when the marked increase in water consumption created a demand for greater sewerage facilities.

The constantly increasing volume of sewage resulting from the gigantic growth of the city was discharged in a raw state into the waters of the harbor for many decades.

The failure to provide treatment was to a considerable extent influenced by the belief that tidal waters carried the sewage out to sea. Carefully conducted experiments have shown, however, that the movement of the sewage in the harbor is mainly circulatory, that the currents do not sweep clean on each tide, and that much of the sewage returns almost to its original discharge point.

The numerous studies made in connection with this problem led to the same conclusion; namely, that the waters surrounding New York City were becoming more and more polluted, and that definite steps had to be taken to alleviate this condition. Yet, no concrete remedial measures were effected until 1931, two years after the creation of the city-wide Bureau of Sewage Disposal.

At that time there existed in Greater New York, under the jurisdiction of the individual Borough Presidents, eight fairly good screening plants and eight old plants of doubtful value. All these plants, because of their limited size and methods of treatment, were highly ineffective.

## New Era Begins

The studies of the bureau engineers resulted in a city-wide program for successive construction of sewage treatment works predicated on immediate local needs, but with a consideration of the over-all problem.

In 1931 the city began its program by starting work on the Wards Island plant, but had to stop in 1933 because of the depression.

Meanwhile, the Coney Island plant, costing much less and partly financed by a Federal grant, was started in the early part of 1934 and completed two years later. Thus, the Coney Island plant has the distinction of being the first of the modern sewage treatment plants in New York City.

## Coney Island Plant

The Coney Island plant is located on Shellbank Creek in the southeastern portion of Brooklyn and includes in its drainage area the famous beaches.

Since the effluent from this plant is discharged into a large bay area, there is no need for a high degree of treatment at this location about two-thirds of the year. During the bathing season, however, when the Coney Island beach area attracts millions of people, the plant must produce an effluent of a higher purity.

For this reason the designers chose a flexible type of treatment. In winter the sewage is subjected to plain sedimentation only. During the summer this process is augmented by chemical precipitation and chlorination.

The Coney Island plant as built in 1936 had a designed capacity of 35 mgd. It consisted primarily of a pumping station, circular sedimentation tanks with flocculators, digesters with gasometers, engine-generators fueled with sludge gas, a building housing chlorinating and chemical handling equipment, a vacuum filter, and a 72-inch

**PART I—The background of New York City's pollution abatement program, and how two of the city's modern plants came into being.**

outfall, over 8,000 feet long, provided with diffusers at the discharge end.

A specially designed building was erected for storing forty-three 2,000-pound chlorine tanks and three steel tanks, each containing 6,000 gallons of caustic soda solution to be used in case of serious chlorine leaks. No need for the use of this caustic solution has arisen since the plant was placed in operation.

In 1942 the Coney Island plant was enlarged to a designed capacity of 70 mgd. Present flow averages 54 mgd. The extension consisted of a new pump and power building which houses the mechanically-operated coarse and fine racks, a detritor with grit washers and ejectors, the pumps, and the power generating units.

Sedimentation facilities were increased by the addition of rectangular settling tanks of the monorake type, each preceded by a flocculator. Tanks with floating covers were added to augment digester capacity. More diffusers were installed at the end of the originally built 72-inch outfall which had been designed to accommodate the increased flow.

The vacuum filter installed in 1936 for dewatering the digested sludge was hardly used. Soon after the filter's installation it was found to be more economical to barge the sludge to an area designated as a future park, to be dried in shallow sand lagoons and later used as a soil conditioner in this area or in other parks.

The gas produced in the digesters is used as a fuel in the three 900-hp engines driving three generators. There is enough gas generated to take care of all the power and light needed at this plant. The waste heat from the engines' exhaust and cooling water is utilized for heating all the plant buildings and the digesters.

### Wards Island Project

Construction of the Wards Island plant was resumed in 1935 with the aid of a P. W. A. grant and completed in 1937. It is located on the island in the East River from which it takes its name. The quantity of sewage to be treated at this location was to exceed many times the flow at the Coney Island plant. Furthermore, the effluent from Wards Island would be discharged, not into a large bay, but into the restricted waters of the East River, which has practically no flow other than oscillation of the tides.

In view of these conditions, a high degree of purification throughout the year was sought at this plant. The activated sludge process type of treatment was selected and the plant built accordingly.

The areas tributary to the Wards Island plant are a part of the easterly portion of the Borough of Manhattan and the westerly third of the Borough of the Bronx. The designed capacity of the plant is 180 mgd, with a permissible overload of 25 per cent. The present flow approximates 220 mgd.

The sewage from each area is carried through interceptors, provided with regulators for by-passing excess storm flows, to a grit chamber equipped with mechanically operated coarse and fine racks and grit channels. At the lower end of the grit channels, the sewage enters a shaft and goes through tunnels under the East River to the Wards Island plant. Both tunnels terminate in a common well on Wards Island, from which the sewage is pumped to settling tanks. The settled sewage from these primary tanks is admitted to the aeration tanks, and the aerated sewage flows to final settling tanks. The final effluent is discharged into the East River.

The sludge at Wards Island is not digested. It is pumped directly to storage tanks and then loaded by gravity into sludge vessels for final disposal at sea. Three vessels are provided for this purpose. They are self-propelled and each has a capacity of 55,000 cubic feet.

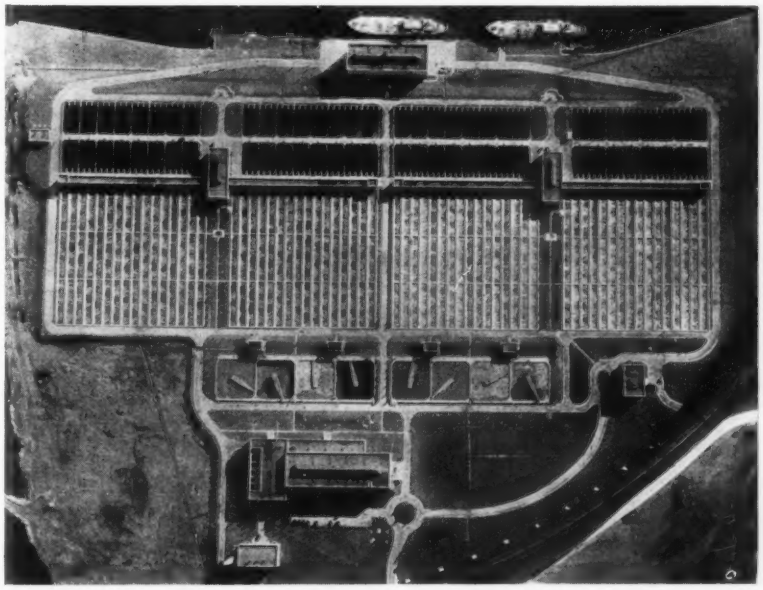
The sludge dumping grounds are located about twelve miles offshore and are approximately thirty-five miles from the Wards Island plant.

Shortly after the operation of the city's sludge vessels had begun in January 1938, numerous complaints were lodged with the Supervisor of New York Harbor against the dumping of sludge in the area designated by him for this purpose. The objections raised were not based on any definite annoyance or inconvenience caused to communities located along the shore, but chiefly because of a popular aversion to these wastes.

Nevertheless, an investigation was ordered to determine the effect of the dumping of sludge on the site in question. It was conducted under variable tide and wind conditions and included chemical and bacteriological determinations and observations of the physical state of the waters in the dumping area. The results of this investigation showed that the sludge odors and floating material disappeared quickly, and the waters in the area which was under examination quickly regained normal conditions after each dumping.

As a result of these findings, the dumping of sludge continues in the location originally designated.

*(To be continued in the July issue)*

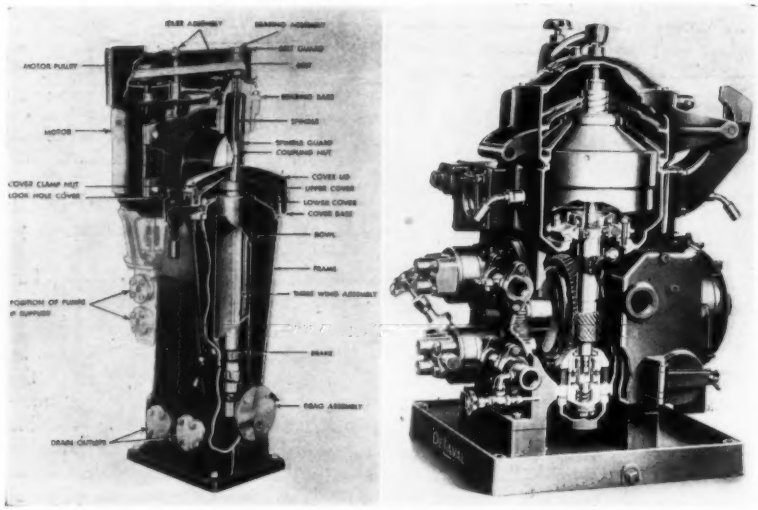


**The Wards Island plant is the first modern sewage treatment project begun under the direction of the Bureau of Sewage Disposal. It was completed in 1937.**

# Oil Purification and Filtration

## II. Treatment by Centrifuging

By BRIAN CORRIGAN
*Technical and Research Division*
*The Texas Company*
*New York 17, N. Y.*




**Left: Details of the Sharples Super-Centrifuge with parts identified. Right: The DeLaval Uni-Matic Oil Purifier, which removes both dirt and water from the oil.**

Purification by centrifuging employs the same basic principle as settling and decantation, but is faster and more complete, because the separating force is several thousand times that of gravity. The centrifuge or centrifugal separator is a device for freeing the oil of dirt, water, suspended, insoluble, oxidized material, and foreign, mineral, and carbonaceous matter. Claims are made that centrifuging an oil will also remove soluble oxidation products. Generally, this is not true, except in the case of some organic acids (only those more soluble in water than oil) which may be removed if water is added along with the oil being centrifuged. This is also true for mineral acids if present. Centrifuging wet, if started on new oil, will keep the accumulation of acids in the oil at a very low level. As with settling and decantation, a centrifuge will not separate liquids which are mutually soluble, such as fuel in lubricating oil. Likewise, this method will not remove colloidal foreign matter, particularly from heavy-duty engine oils with dispersant properties.

The term "capacity," as applied to centrifuges, is often used loosely. A centrifuge may be said to have two capacities:

1. Through-put capacity, which is the total quantity of oil that may be put through the machine without overflowing regardless of the degree of purification effected.

2. Effective capacity, which is the quantity of oil that may be put through the machine with the desired degree of purification.

Effective capacity generally has no relation to through-put capacity but is a major consideration with the user. Effective capacity depends upon used oil viscosity, oil temperature in the centrifuge, degree of oil contamination, degree of purification desired, and persistency of emulsion if wate is present. In selecting a centrifuge for use on a bypass in a circulation system, it is best to choose one having a manufacturer's rated capacity sufficient to handle all of the oil in the system in some three to six hours. It is assumed in this connection that the centrifuge will be operated either continuously or intermittently on oil batches.

When centrifuges are used for oil purification, they should always be set to operate by the two-liquid discharge method. This does not necessarily mean that water should be added to the centrifuge, but a discharge opening should be provided to emit any water which may get into the oil system. This is particularly necessary:

1. In all marine turbine and diesel installations.
2. In land turbine installations.
3. When condensation is apt to occur, as when operating a diesel or gas engine intermittently or with a crankcase sufficiently cold to condense the water vapor present in blow-by gases.
4. When oil storage tanks are buried in the ground.

The terms "wet" or "dry" centrifuging are used to indicate whether or not water is intentionally added to the oil at the centrifuge. Although it is somewhat inconvenient, cleaner oil will result by the addition of water to the oil at the centrifuge under proper operating conditions. Care must be taken to insure that stable emulsions are not formed as a result of introducing water at the centrifuge. Centrifuging wet has the following advantages:

1. The water has a washing effect, aiding in the removal of impurities.
2. The water carries away most of the lighter insoluble impurities which have approximately the same gravity as that of oil, permitting longer runs between cleanings.
3. Some acids, particularly when freshly formed in lubricating oil, are more soluble in water than in oil and are thus removed, as are mineral acids.
4. In many cases of corrosion of centrifuge bowl parts in service, the corrosive attack has been markedly diminished, or entirely stopped by feeding a small amount of fresh clean water continuously into the centrifuge, thus diluting and washing out salt and acidic contaminants.

The objections to wet centrifuging are:

1. Owing to the greater density of water, the water discharge must be of a greater diameter than the oil discharge to permit water to flow out of the centrifuge. Accordingly, if the water seal breaks, oil will flow out of the lower discharge instead of the oil discharge.
2. If periodic cleaning of the centrifuge is neglected, the dirt-holding space may become filled with oil contaminants and water. When this occurs the bowl overflows, and dirt and water are not removed from the oil.
3. Clean oil and water normally will not emulsify. If the oil becomes unusually dirty, emulsion difficulties may occur. In such cases the amount of water should be decreased, the oil temperature increased, or the oil-feed rate temporarily reduced until satisfactory separation is again obtained. Normally, a centrifuge will break an emulsion which is not too stable.
4. Certain types of additives used in heavy-duty diesel engine oils and in inhibited turbine oils tend to concentrate at an oil-water interface with the result that at least a portion of such additives will be removed.

* This is the second of three articles by Mr. Corrigan. The July installment will discuss lubricating oil filtration.

# A Part-Time Water Filter Plant

By H. F. WIEDEMAN
*Wiedeman and Singleton*
*Atlanta, Ga.*

**Johnson City, Tenn., filters its summer reserve supply, drawn from the North Indian Creek.**

THE people of Johnson City have always been proud of their water supply. For years they have been able to draw from springs and underground collecting fields, which are in a gravel formation in the water shed of North Indian Creek, about eleven miles from Johnson City. And they have been able to get a soft water that requires no treatment except chlorination. They have had the further advantage of using a supply that required no pumping.

From a central collecting well the water flows by gravity through a 16-inch cast-iron pipe to distributing reservoirs having a total storage capacity of 5.5 million gallons.

The elevation of the collecting well is 2,175 ft., and the elevation of the distributing reservoirs is 1,838 ft. There are points on the supply line, however, which are as low as 1,700 ft. Back in 1912, when the line was constructed, the designers evidently anticipated operation of an open-end system at the distributing reservoirs, because the heaviest pipe in the line is Class B. This is the way the system has been operated, with excess water delivered by the supply line passing to waste through the reservoir overflow.

The system serves a population of approximately 30,000 and is 98% metered. Consumption in April 1944 was at the rate of 3 mg daily. Maximum daily requirements are estimated at 4.5 mg daily.

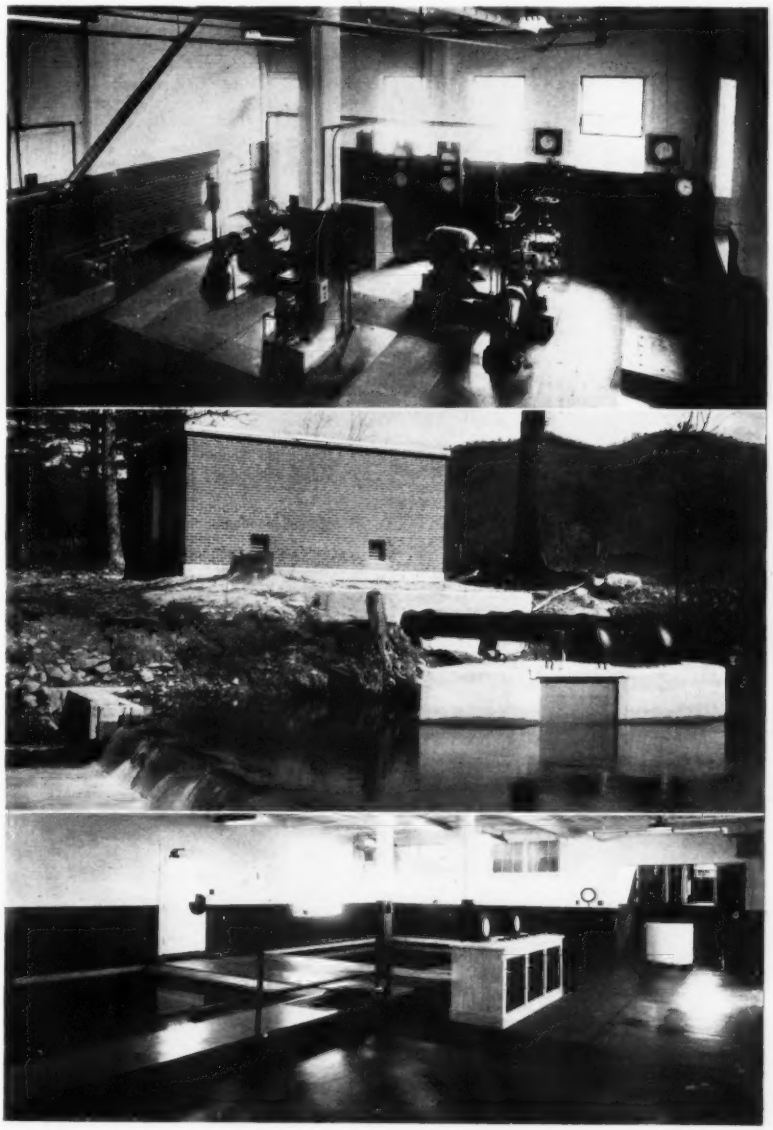
It is interesting to note that the cast-iron supply main, which is tarcoated and has been in operation for thirty years, has a Williams and Hazen coefficient of 140. The delivery capacity is aproximately 5,000,000 gallons per 24 hours. A Sparling main-line meter measures the flow. Another is at the point of discharge. However, this supply has its limitations.

Meter records indicate that the maximum daily flow from the collecting areas is 4.8 mg daily, but the maximum rate during the summer months is 3.2 mg daily. Although on paper this looks safe enough, the maximum demand and minimum supply often occur simultaneously. Johnson City often has been faced with a water shortage during the summer months. Since water use was increasing each year and the maximum development of underground sources has been reached, it became necessary to seek an additional source of supply.

The nearest source of supply was North Indian Creek, which at the point of intake has a drainage area of 26 square miles. Gaugings made during the summer of 1944 indicated a minimum flow of 2,750,000 gallons daily. Studies of storage possibilities on North Indian Creek indicate that the stream may eventually be developed to yield from 10 to 12 mg daily.

The first step in the development provided for a minimum daily flow of 5 mg, a minimum of three million gallons daily to come from the spring and two million gallons to be obtained by the filtration of raw water from North Indian Creek.

A low intake dam constructed on the creek provides a pool that can be used to draw the water. This dam is



**Top: Convenience and spotless cleanliness characterize the pump and control room. Center: The plant's reserve supply of water comes from the Irishman's Branch of the Indian Creek. The intake structure is teardrop-shaped to minimize flow turbulence. Bottom: The two filter beds, each with 1-mgd capacity.**

equipped with Link-Belt wooden weir gates, measuring 3 feet 2 inches by 2 feet 6 inches, which may be lifted to remove debris which may have accumulated during or after periods of storm flows in the creek. Upstream from this dam a reinforced concrete intake structure has been constructed.

The filtration plant consists of one sedimentation basin, 52 feet by 111 feet by 14 feet, with a theoretical settling period of six hours at a two-million-gallon daily rate. A gravity mixing basin is constructed at the inlet end of each settling basin which is designed for a mixing period of 30 minutes.

As the water enters the plant it passes a Builders Providence propeller-type flow meter. A throttling valve is provided to regulate the flow.

A short rapid mix is provided at the point where chemicals are added, and the water then flows through the cast-iron pipe line to the mixing or flocculating basins, thence through the sedimentation basins to the filters.

There are two filters, each having a capacity of a million gallons daily at a rate of two gallons per minute of sand area. The raw water is unpolluted and is generally low in turbidity. An operating rate of three to four gallons per square foot of sand area may, therefore, be used with safety, if required. The filters are equipped with Wheeler bottoms. They are operated by Iowa valves and Builders-Providence controls.

It is anticipated that the plant will be operated for not more than five to six months per year during the immediate future. The method of operation will be as follows. When the underground supply is in sufficient volume, water will flow from the collecting well past the plant. It will be metered at this point, and chlorine will be added. As the discharge from this source decreases, filtered water will be pumped into the supply line. The flow from the pumps will be regulated to permit maximum flow from the underground source, which is approximately 125 feet higher than the center line of the pumps. Since the supply line cannot be shut off when distributing reservoirs are full, information on the depth of water in the reservoirs will be relayed to the filtration plant to prevent wastage of filtered water.

The capacity of the system is limited to the capacity of the supply line, which is 5 mg daily. Some additional capacity may be obtained by the installation of booster pumps.

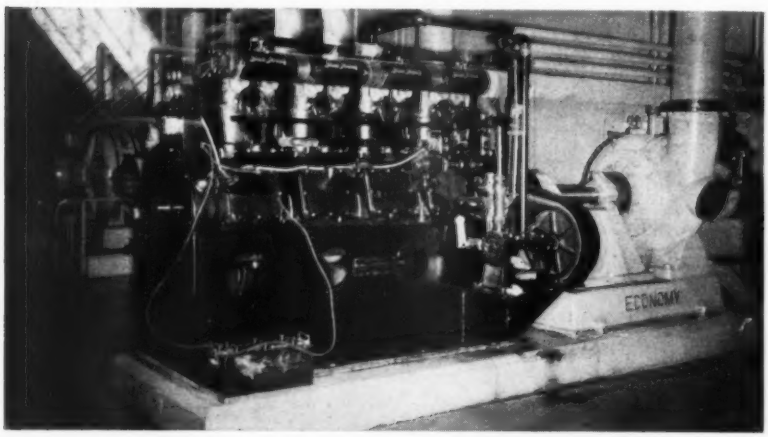
The improvement was made possible largely through the work of City Manager M. U. Snoderly. The writer's firm was retained to design and supervise the construction.

# What to Expect from Sewage-Gas Engines

By E. D. WEST, *Manager*
*Engineering Division*
*Climax Industries, Inc.*
*Chicago, Ill.*

THE operation of internal combustion engines on sewage sludge gas as a fuel is comparatively new. So much has been written on the subject and the results obtained from installations made over ten years ago have been so uniformly successful, it would seem that any new plant design would necessarily include gas engines in order to insure maximum plant economy. As an outstanding engineer recently remarked, "My Scotch instinct won't permit me to submit a plant design which doesn't include provision for converting the by-product gas into power as otherwise I am advocating waste. . . "

Up to the outbreak of World War II, there were approximately 125 sewage treatment plants in this country which had gas engines handling the major part of the plant load. During the war period, the military demands on the engine manufacturers were such that spare parts were often unavailable for civilian needs. Despite this abnormal condition, the engines continued to give hours of service with few interruptions and no serious breakdowns to our knowledge. This is because engineers and manufacturers have been careful to apply engines, rated conservatively as to speed and power, for continuous operation. Some of these engines have operated over 70,000 hours with remarkably low maintenance cost. Naturally, performance and maintenance cost will vary considerably with the kind of treatment the engines receive. Cleanliness, proper lubrication, and frequent inspections are all a high-grade gas engine needs until natural wear calls for a general overhaul. Based on surveys made, we are justified in saying that the maintenance cost, including lubricating oil, should not exceed $.0012 per rated hp hour. This estimate covers all expenses (other than labor) to maintain the engine in efficient running condition over an indefinite period. The plant at Aurora, Ill., with four engines totalling 250 rated hp has spent $7,784.73 (which includes $500.00 for oil purifiers charged to maintenance) from April 1, 1936, to January 1, 1947. The total rated hp hours of service during this period amounted to 9,492,975 or an average of $.00082 per rated hphr. Since these engines were installed to replace purchased power, Superintendent Walter H. Sperry of Aurora Sanitary District figures that the two 75-hp pumping engines have earned 315% of their gross cost after 129 months of operation, and that the two 50-hp engines that are driving generators have earned 136% of their cost after seventy-three months of operation. A 50-hp Climax engine direct-connected to a blower in the plant at Lake Charles, La., operated continuously for seven years (60,888 hours) except for approx-




**The Climax gas engine for either gasoline or sludge gas fuel.**

imately the eighteen days used for changing oil and grinding valves. Superintendent S. S. Crawford reports that it is still operating satisfactorily after 70,000 hours of service. Many other engines have similar records, but we lack specific data on maintenance cost.

Where conditions permit that engines be connected directly to pumps or blowers, maximum economy is obtained because of the possibility of maintaining a high load factor and avoiding the loss necessary in transmitting power through an electric generator and motors. There are conditions, however, where engine driven generators provide better overall results, because of greater flexibility of power utilization. Reasonably good load factors can be maintained by installing multiple units which can be operated singly or in parallel based on load requirements over the twenty-four-hour period.

A question frequently raised deals with the necessity of removing from the gas, the hydrogen sulphide which is present to a greater or lesser degree in all sewage sludge gas. Some of the earlier installations encountered difficulties from corrosion and later scrubbers were installed. Where there is an excessive amount of hydrogen sulphide, the use of scrubbers will eliminate one cause for expensive replacements of engine parts and heat exchangers. However, experience has proven that care in maintaining temperatures well above the dew point makes scrubbers unnecessary when the hydrogen sulphide content does not exceed approximately thirty-five grains per 100 cubic feet. Of the forty installations we have in mind, only two have installed scrubbers. This is not the serious problem it appeared to be at one time.

A matter being considered by many engineers is the advantage of grinding garbage and mixing it with the sewage flow through the disposal plant. This garbage content adds materially to the gas production, and the value of the gas as engine fuel exceeds the cost of processing and disposing of the garbage. At Marion, Ind., (*The American City, Sept.*, 1946) the Superintendent of the sewage treatment plant estimates a *revenue* of $1.00 per ton as against a disposal *cost* of from forty cents to $3.50 per ton in other cities.

A number of plants, designed before the engineers were convinced that sewage sludge gas could successfully and economically be utilized in power generation, have installed gas engines to replace electric motors. An outstanding instance is the plant at Aurora, Ill. In designing the pump room the engineers had the foresight to provide ample space for additional equipment. In 1936, the District's engineer, Mr. Walter E. Deuchler, with the cooperation of Superintendent Sperry, installed two 75-hp Climax engines to replace the electric motors which drive 8-mgd centrifugal pumps. By means of float control the engine speed and the pump capacity can be automatically controlled over a range of from a 3½- to 12-mgd rate. The installation included exhaust gas-heat recovery units and jacket water-heat exchangers. After four years' experience with the pump engines, two 50-hp engine-driven generators were installed to take care of the balance of the plant load. Results were such as to justify eliminating entirely the outside power connection. Since November 1940, the entire plant has been operated by gas engines with no standby electrical connections.

In 1937, the sewage treatment plant at Wichita, Kans., replaced a 75-hp electric motor with a 75-hp Climax engine for driving a centrifugal pump, and in 1944, a completely new 75-hp engine-driven pump was added. In 1940, the sewage treatment plant at Galesburg, Ill., installed the same size engine to replace an electric motor and at present are installing a second engine.

One feature in connection with sewage gas engines that has not been widely discussed is the interest the public has in learning that the by-product gas is being used for power generation. A sewage treatment plant cannot show a profit. It must be supported by the taxpayers, and they are well impressed by evidence of economical operation. They are also intrigued by the fact that the by-product gas can be used to develop power and that after it has been burned in the engine, 50% or more of its initial heat value can again be used for heating purposes; in other words, a by-product of a by-product. The clever superintendent uses information of this kind to maintain the friendly interest of the public he is serving.

# Hopkins, Minn., Builds New Overhead Tank

WATER pressure is better and fire protection more adequate in Hopkins, Minn., now that this community has installed a new all-welded Chicago Bridge and Iron overhead storage tank. The tank has a capacity of 500,000 gallons and is 72 feet high, measured to the bottom of the elevated tank proper. Its riser pipe is six feet in diameter.

Hopkins is 3 square miles in area and has a population of 5,000. The new elevated tank serves the entire community. Water comes from two wells, both of which are located near the pumping plant and distribution system.

The water department has two Fairbanks-Morse pumping units of 500-gpm capacity, both of which are electrically driven. Power costs range from 2 cents per kwhr for the first 2,000, to 1½ cents per kwhr for the next 2,000, and 1 cent for all over.

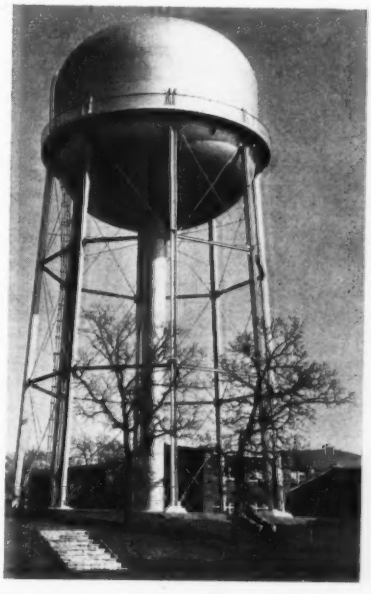
Hopkins has 1¼ miles of 8-inch distribution mains and 7 miles of transmission mains. Six miles of the transmission mains are 6-inch pipe and 1 mile is of 4-inch pipe.

In addition to the 500,000-gallon tank, the community also has an 80,000-gallon elevated tank. It has 140 fire hydrants in the distribution system, but does not have to raise the pumping pressure for fire emergencies.

The water works system supplies 1,200 customers, five of which are industrial. The average daily use of water is 392,000 gallons, or 78 gallons per capita.

The community has an excellent fire-rating obtained through the energetic work of its volunteer fire department. Improvements recently made to better the fire insurance rating consist of additions to the fire equipment as well as the new overhead storage tank.

Distribution of water throughout the system is at a pressure of 45 psi.



**Hopkins' new half-million gallon overhead storage tank makes for improved water distribution and fire protection.**

# What Constitutes Municipal Refuse?

IN analyzing garbage and refuse collection practices throughout the country, nothing seems quite so consistent as their inconsistency. This is not necessarily a detrimental feature. Any municipal problem must be solved on the basis of its own particular characteristics and not by trying to borrow some panacea from one's neighbor town.

Theoretically, collectible refuse can be divided into organic and inorganic classifications—garbage and refuse. This permits the garbage, a public health hazard, to be collected on a separate schedule.

Again theoretically, the rubbish can be subdivided into two categories—combustible and non-combustible, particularly where incineration is practiced. This avoids overloading the incinerator with material which cannot be reduced further and keeps incinerator operation at an efficient level.

Of course, theoretical definitions such as these may have to be modified for the average housewife. Wichita, Kans., uses the classification of "organic waste" to define garbage, while other municipalities call it animal or vegetable matter, or waste food.

There is a great variation in the unit weights of garbage as reported below. Superintendent W. A. Xanten, City Refuse Division, Washington, D. C., points out that where garbage weighs less than 1,000 pounds per cubic yard, the light weight results from the inclusion of large amounts of paper, or because of a "drained and wrapped" requirement. Garbage which is collected under strict separation requirements and not drained or wrapped will weigh upward of 1,000 pounds per cubic yard. This is verified by reports from Washington, Philadelphia, Rochester, and Memphis.

The summary that follows tells how each of these cities classifies its refuse.

## *Summary of Garbage and Refuse Practices*

ATLANTA, GA. Has single collection of garbage and household refuse. Terms anything that is removed from this single collection as *garbage*. Hedge trimmings, yard clippings, and leaves are termed *rubbish*. Ashes do not constitute a serious problem and are collected from households in the same cans with the garbage. Large amounts, such as those from apartments, are allowed to accumulate until there is a load that can be hauled directly to the dump.

The city keeps all records on a scale-weight basis and does not attempt to reduce this to a weight per unit volume. A moderately heavy rain will increase the weight so much that unit-volume weights are untrustworthy. In a typical year tonnages average approximately 8,000 tons per month, with a high of over 10,000 in July and a low of 6,700 in October and November. Calculating from Atlanta's population of 300,000, this means an average contribution of 1.75 pounds per capita per day, based on material actually weighed. Since tree trimmings and hedge clippings are not weighed, the Atlanta Sanitary Department has estimated that they would account for 0.25% per capita daily, giving a 2-pound figure for total collections. H. J. Cates, Chief, Sanitary Department, is in charge of the work.

BOSTON, MASS. Classifies *garbage* as all kitchen and other putrescible waste and classifies all other as *mixed refuse*. Units are based on cubic-yard truck capacity and are not weighed. Garbage runs from 460 to 690 pounds per cubic yard of truck capacity, and refuse averages 290 pounds to 420 pounds. A. J. Post is the Division Engineer in charge.

CHICAGO, ILL. Classifies *garbage* as refuse organic matter rejected or waste household food, offal, swill, or carrion. *Refuse* is classified as all garbage, ashes, and other rejected matter, except manure or discarded construction or building material. *Ashes* are also classified as the ashes of wood, coal, and coke; the residue resulting from the combustion of any material or substance, soot, cinders, slag, or charcoal.

Chicago measures all refuse in units of cubic yards. Weights vary from 300 to 1,200 pounds. In 1944, it was attempted to check weights against volumes, but with no success. For estimating purposes, 700 pounds per cubic yard is used. The city gathers all classes of refuse in one collection. L. M. Johnson is Commissioner of Streets and Electricity.

DALLAS, TEXAS. Makes a wholesale classification of *garbage* as rubbish, trash, kitchen and household waste, ashes, paper, and food containers. It also classifies *brush* as tree trimmings, weeds, hedge and shrubbery trimmings and tree limbs not larger than three inches in diameter and six feet long. The city collects an average of 10,209 tons per month of garbage and 20,125 cubic yards of brush. Based on Dallas' 430,000 population, this averages 1.6 pounds of garbage per capita and 0.7 pounds of brush. G. C. Brinkley is Superintendent of the Sanitation Division.

MEMPHIS, TENN. Classifies *garbage* as decaying animal and vegetable matter; *refuse* as non-combustible waste; *brush* as combustible waste. Garbage weighs 1,800 pounds per cubic yard, combustible refuse 800 pounds per cubic yard. W. H. Hugo is Superintendent of Service.

MILWAUKEE, WIS. Has two collection departments. One collects *garbage*, which is defined as animal, fruit, and vegetable waste from domestic household kitchens. The other collects *refuse*, which includes all other discarded material except garbage. Garbage weighs 400 pounds per cubic yard during the winter months and 800 pounds during the summer. Ashes and rubbish weigh from 500 to 1,000 pounds per cubic yard. Ashes alone weigh 800 pounds per cubic yard. Monthly collections average 62,000 cubic yards for ashes and refuse, 3,600 tons for garbage. Based on Milwaukee's population of 587,500 and an average refuse weight of 750 pounds per cubic yard, this means a contribution of 2.6 pounds per capita per day for refuse and 0.4 pounds for garbage. Last year, refuse collections reached a maximum of 87,600 yards in January and a minimum of 35,000 in July. Garbage reached a minimum of 2,500 tons in February, a maximum of 5,000 tons in September. Walter M. Swietlik is Commissioner of Public Works.

NEWARK, N. J. Makes a combined collection of all *refuse* that covers ashes, garbage, rubbish, paper, and other collectible municipal wastes. This refuse averages 600 pounds per cubic yard. Collections approximate 20,000 cubic yards weekly and vary from a low of 15,000 in August to 28,000 in December. Based on Newark's 430,000 population, this means approximately 4 pounds per capita of refuse. John S. Flockhard is Engineer in charge.

NEW YORK, N. Y. Classifies *garbage* as organic matter; *refuse* as any material that is worthless; brush, ashes, and rubbish as inorganic matter. Garbage and refuse together weigh 350 pounds per cubic yard. Ashes, with rubbish mixed, weighs 500 pounds. The collections run the equivalent of 70,000 yards in summer and 90,000 yards in fall and winter. William J. Powell is Sanitation Commissioner.

CINCINNATI, OHIO. Classifies *garbage* as all putrescible wastes, including vegetable and animal offal, excluding industrial by-products. The city classifies *ashes* as residue of combustion of fuels as wood, coal, coke, and charcoal. *Waste*, rather than refuse, is classified to mean all trash, rubbish, garbage, offal, and other refuse or discarded matter required to be removed from private and public places. Business or commercial waste products are not included unless they become a nuisance or menace to public health. Waste is divided into *combustible* and *incombustible* categories. Combustible waste, including wrapped garbage, varies from 400 to 600 pounds per cubic yard. Non-combustible rubbish, including ashes, varies from 800 to 8,500 tons per month, with a low of 5,600 in February and a high of 10,400 in August. Last year's collections produced an average contribution of 1.25 pounds per capita per day based on a population of 456,000. Non-combustible wastes averaged 21,850 cubic yards, with a low of 11,360 in July and a high of 37,123 in January. Based on 900 pounds per cubic yard, this means 0.15 pounds per capita daily. Ralph C. Taylor is Superintendent of the waste collection division.

DENVER, COLO. Classifies *garbage* as such animal or vegetable matter that is kitchen waste fit for livestock feed. The balance of the refuse is classified as *brush and other collectible waste*, which includes tin cans, bottles, grass, and general rubbish; except ashes, bricks, plaster, sod or stone, and tree trimmings. These exceptions must be disposed of by private hauling. Garbage is collected once a week in winter, twice a week in summer, and daily in business districts; brush is collected every five weeks. Sam Hansen is Manager of the City Garbage Department.

DETROIT, MICH. Makes the following classifications: *Municipal waste*, consisting of discarded products incident to housekeeping and commercial enterprises. *Domestic waste*, the waste material resulting from the usual routine of housekeeping and including garbage, rubbish, and ashes. *Commercial waste*, the miscellaneous waste material resulting from operation of business enterprises and including garbage, rubbish, and ashes from offices, stores, and the like. *Garbage*, all waste, animal, fish, fowl, fruit, or vegetable matter, incident to the use, preparation, and storage of food for human consumption. It includes spoiled food and dead animals, but excludes food in containers

**A spot check of garbage and refuse classifications and unit collection figures found in some of our major cities.**

of non-burnable nature. *Rubbish*, the miscellaneous waste material resulting from housekeeping and ordinary mercantile enterprises and including packing boxes, cartons, excelsior, paper, ashes, cinders, tin cans, bottles, metals, etc. Rubbish is classified into *burnable* and *non-burnable* categories, and they must be separated. Garbage and burnable refuse may be placed in the same containers.

Garbage weighs an average of 390 pounds per cubic yard; other wastes average 600 pounds per cubic yard; ashes reach 1,000 pounds per cubic yard, and when wet run a little heavier. Garbage collections jump 20% in the peak summer months; other wastes rise 10% to 15% in winter by virtue of ash collections. Carl D. Warner is Superintendent, Division of Sanitation.

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DISTRICT OF COLUMBIA. Includes in the *ash* category coal ashes, household-incinerator ashes, and oyster and clam shells. It also includes fallen plaster and non-combustible yard refuse with a limit of 3 bushels or 24 gallons. *Garbage* is defined as waste food only, and it does not include oysters or clam shells. *Trash* is classified as normal household refuse such as paper, bottles, tin cans, discarded cooking utensils, reasonable amounts of grass cuttings, leaves, small branches, Christmas greens. Garbage averages 1,100 pounds per cubic yard. Rubbish runs from 200 pounds to 230 pounds per cubic yard. Ashes average 1,350 pounds per cubic yard. Wm. A. Xanten is Superintendent, City Refuse.

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FLINT, MICH. Classifies *garbage* as animal or vegetable matter from a kitchen, store, or market. *Refuse* is defined as tin cans, bottles, broken glass, crockery, or other non-combustible waste. Refuse weighs from 300 to 500 pounds per cubic yard; ashes, 1,000 to 1,200 pounds; garbage, 500 to 800 pounds. Ash collections are conducted only in the winter. Herman Clapp is Supervisor of waste collection and disposal.

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FORT WORTH, TEXAS. Defines *garbage* as all animal and vegetable matter such as waste material and refuse from kitchens, residences, grocery stores, butcher shops, and similar locations. *Trash* means ashes, tin cans, glass, grass clippings, yard cleanings and leaves. *Rubbish* refers to tree limbs, hedge cuttings, boxes, cartons, other accumulations too large for trash containers. Garbage weighs 300 pounds per cubic yard uncompacted. R. R. Lacey is Superintendent of Waste Disposal Service.

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HARTFORD, CONN. Classifies *garbage* as all kinds of offal, swill, or other kitchen refuse or plant life likely to putrefy or draw flies. *Rubbish* is defined to include waste paper, leaves of trees, small branches, twigs, and grass cuttings. Garbage weighs approximately 1,000 pounds per cubic yard; rubbish 275 to 300 pounds. R. W. Thompson, Superintendent of Streets, has charge of this service.

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HOUSTON, TEXAS. Gives an all-inclusive definition to *garbage*, including rubbish, trash, kitchen and household waste, ashes, paper food containers, small tree trimmings, hedge trimmings, leaves, grass, weeds, and refuse. This mixture averages 480 pounds per cubic yard in open trucks, 600 pounds in the Gar Wood Load Packers. The city has no ash problem. W. G. Wilson is Superintendent of the Garbage Divisions.

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NORFOLK, VA. With completion of its new incinerator, changed to collection methods calling for separation into *combustible* and *non-combustible* categories. The combustibles, including garbage, go directly to the incinerator while the non-combustibles are hauled to the dump. Combustibles average 450 pounds per cubic yard. Non-combustibles will weigh 800 pounds. July and August give the greatest yardage; January, February, and March are lightest months. C. W. Armstrong is Superintendent of the Division of Street Cleaning.

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PHILADELPHIA, PA. Classifies *garbage* as waste of animal and vegetable matter resulting from preparation of food for human consumption. This does not include oyster or clam shells.. *Rubbish* is classified as all household waste which is burnable. *Ashes* also are classified separately. Weight per cubic yard of garbage runs 1,100 pounds; ashes, 1,000 pounds; rubbish, 200 pounds. No exact figures are available on ash and rubbish since quantities are measured by loads. Dudley T. Corning is Chief of the Bureau of Highways and Street Cleaning.

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PITTSBURGH, PA. Classifies *garbage* as all refuse of animal or vegetable matter which has been used for food or was intended to be used; includes offal, condemned or spoiled food, and dead animals. *Refuse* is divided into combustible and incombustible categories. It includes ashes and cinders in the combustible category. A combined collection is made. The city does not calculate unit weights. During 1940, garbage was tested and it was discovered that on representative samples—60% garbage, 40% rubbish—the mixture contained 50% moisture, 35% combustible matter. 14% ash and weighed 485 pounds per cubic yard. James J. Hughes is Superintendent, Bureau of City Refuse.

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ROCHESTER, N. Y. Includes as *garbage* all animal and vegetable matter and fruit from trees. *Rubbish* includes paper, rags, paper cartons, tin cans, bottles, yard rakings, shrubbery, and hedge and tree trimmings. These trimmings must be tied in small bundles. Garbage, rubbish, and ashes are collected separately. Garbage is treated by reduction, rubbish by incineration with steam generation. Ashes go directly to various land fills. Weight per cubic yard of garbage is 1,600 pounds; rubbish, 175 pounds; ashes, 1,000 pounds. John V. Lewis is Director of Maintenance and Operation.

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SEATTLE, WASH. Considers as *garbage* all accumulations of waste matter discarded as of no further value to the owner, such as kitchen and table waste, bottles, cans, wrappings, and small discarded containers; small dead animals, waste from the processing of meats, fish, fowl, fruits, or vegetables; excludes trade wastes occasioned by goods condemned in case lots; manure, night soil, sewage, large dead animals, catch basin cleanings, and trade waste from manufacturing and processing establishments, slaughter houses, and poultry dressing establishments. Garbage and refuse from docked ships is excluded. *Refuse* is classed as waste matter including ashes, cinders, lawn cuttings and grass, broken household furnishings, boxes, barrels, cartons, shrubs, small trees, paper, scraps of board, and lumber. Garbage, refuse, ash are combined and average about 400 pounds per cubic yard. Collections are constant. January and July ran 100,000 cubic yards; ashes in winter balance fruit and vegetable garbage in summer. On the basis of Seattle's 480,000 population, this means a contribution of 2.75 pounds per capita per day. C. L. Wartelle, City Engineer, is in charge of this work.

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SPOKANE, WASH. Considers *garbage* as any waste material containing animal or vegetable matter. Combustible refuse not containing garbage is *rubbish*. *Refuse* is interpreted to mean waste material of any kind. Garbage weighs approximately 450 pounds per cubic yard; ashes, 1,000 pounds per cubic yard, and rubbish, approximately 400 pounds per cubic yard. Harlan Coe, Superintendent. Crematory Division, is in charge of the work.

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WICHITA, KAN. Defines *garbage* as organic waste of animal, vegetable, fruits from kitchen; or residue from handling meats, fowl, fruit, grain, vegetables. It considers all other refuse *rubbish* or *trash* but excludes waste from new constructions, major building repair, cinders from industrial establishments. All waste is handled on a ton basis. The city collects approximately 17,000 tons of garbage per annum and 25,000 tons of rubbish. On the basis of Wichita's 156,000 population, this means an average contribution of 0.6 pounds of garbage per capita per day and 0.9 pounds of rubbish. Ash collection is minimized because of the prevalence of natural gas heating. James T. Newton, Assistant Director, Department of Public Health, is in charge of this work.

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YONKERS, N. Y. Defines *garbage* as animal and vegetable wastes from kitchens and markets. It separates other refuse into combustible and non-combustible categories. The work comes under the direction of James J. Corbalis, Commissioner of Public Works.

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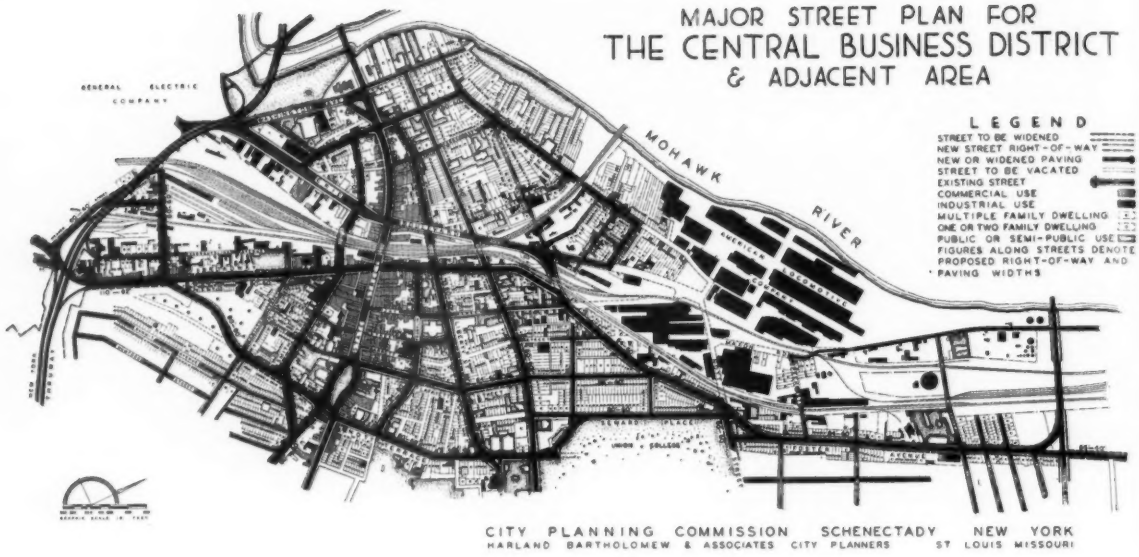
SALT LAKE CITY, UTAH. Classifies *garbage* as wet or perishable material consisting of waste food-stuffs, fruit pulps, and juices from fruit canning. *Refuse* is classified as ashes, cans, paper, sweepings, and other wastes from the home itself. The city also makes a classification of brush and lawn raking but it does not collect building materials, rocks, dirt, lawn sod, manure, and auto parts. Garbage weighs an average of 1,650 pounds per cubic yard. Reed S. Haslem is Superintendent, Sanitation Division, Department of Streets and Public Improvements.

## *Prevention of River Pollution*

THE Illinois Sanitary Water Board recently announced the action taken by the American Distilling Co. to abate Illinois River pollution resulting from the discharge of distillation residues from the company's plant at Pekin, Ill. A series of studies and conferences between the company and technical personnel of the Sanitary Water Board resulted in the present improvement and expansion program. The wastes come from the manufacture of whiskey.

The installation, when completed, will recover from the wastes a valuable livestock feed. The proposed plant will recover material equivalent to the domestic sewage from a city of approximately 575,000 persons. The program calls for the improvement of existing feed recovery equipment and the addition of equipment which will effect complete recovery of all solids contained in the distillation residues when the plant is operating at capacity production. The proposed new equipment consists of the following: 5 Davenport screens of sufficient capacity to handle the slop from a 16,000-bushel-per-day grind; 5 Davenport presses of sufficient capacity to handle the slop from a 16,000-bushel-per-day grind; 1 U. S. Pipe and Foundry Co. quadruple-effect evaporator sufficient to handle the thin slop from a 12,000-bushel-per-day grind. The existing evaporator and drier are being reconditioned and the over-all feedhouse capacity, when this installation is completed, will be sufficient to handle the distillation residues from a 16,000-bushel per day grind. The plant is approaching the latter stages of construction at the present time, and it is expected that the installation will be placed into operation in the early summer.




# Schenectady Plans

# The Town of Tomorrow

By VICTOR J. P. BLAINE
and
JAMES G. SHAW, Jr.

WHEN Schenectady, N. Y., celebrates its sesquicentennial next year, it will mark the event with several months of festivities of various sorts that will not only commemorate 150 years of history but will inaugurate a ten-year development and rehabilitation program.

This program has the ambitious objective of making Schenectady the leading city of upper New York State. Its goal includes better facilities for more pleasant living and working in Schenectady, additional cultural and educational opportunities, more diversified industry.

The timetable of the plan tentatively sets two five-year periods with specific objectives to be reached. To carry out the plan, a community-wide committee, comprising leaders of many local organizations or their deputies, is being formed. Its completion will demand the united cooperation, support, and participation of civic-minded residents generally, but when the goals are reached, the plan "will give Schenectady a home town which will be the envy of thousands of other communities and the pride of every Schenectadian."

It also will give young people "vision and a goal to which they can dedicate their enthusiasm for years to come." "After all," City Manager Arlen T. St. Louis said, "the plan is for a Town of Tomorrow, and the young people will be running the town in a few more years. They certainly deserve a voice in saying what that town will be like."

All of the ultimates are not new projects; many of them have been debated for years, and for some, the money has even been appropriated or preliminary construction started. Others are still on the drawing board or in the planning stage. Harland Bartholomew and Associates, of St. Louis, who have been retained to replan and rezone the city, had many suggestions and recommendations that were adopted.

## Committee Set-up

For broadness of representation, each of the participating organizations has a delegate on the General Citizens Committee, which in turn is subdivided into fourteen groups, each charged with advancing a particular phase of the program. The chairmen of these groups make up the Executive Committee, which is headed by an executive chairman. An executive secretary coordinates the activities of the different groups.

There is also a Ways and Means Committee, made up of an expert in legal matters and an expert in financial matters from each of the sub-committees. Sub-committees include groups on housing and public buildings, transportation, zoning, traffic and parking, regional planning, industrial development, educational and cultural life, parks and recreation, public health and welfare, commercial facilities, and publicity.

## Publicizing and Promotion

Various types of promotion are being used to publicize the plan—essay, speech, and postwar contests in the schools, letter and slogan contests, editorials, lectures, radio forums, store window displays, booklets, and the like.

As the plan is presented to the various organizations, each is asked to name a member to the general committee, and to signify the sub-committee in whose activities it is particularly interested. Each sub-committee will study its own special portion of the big project, promote discussions about it, and make recommendations. At this writing more than 150 Schenectady organizations have endorsed the plan and appointed their representatives to the

"Town of Tomorrow" city-wide Citizen's Committee. A weekly bulletin is keeping them informed of progress.

Public acceptance of the Plan, as shown by the willingness of the various groups to participate, has been enthusiastic. The City Council has recently appropriated $10,000 to the City Planning Commission to meet the additional expenses for putting the Plan into operation. Already, increased interest is being shown in city planning. The next step, proponents of the Plan say, is directing and encouraging such interest into the channels the Plan outlines.

## Timetable

## Proposed for Schenectady's Ten-Year Plan

**FIRST FIVE-YEAR PLAN—1948-1953**

1. Housing—at least 2,500 new dwelling units
2. Slum clearance in 22 blocks around city hall
3. Widening of downtown streets
4. Reconditioning of major streets
5. New civic auditorium
6. New central high school
7. New sewage disposal plant
8. Opening of the new St. Clare's Hospital
9. Improved transit facilities
10. Opening of state throughway spur
11. Replacing old armory with modern traffic circle
12. New Central Park pavilion and swimming area
13. By-pass route for trucks
14. Library addition

**COMMERCIAL AND INDUSTRIAL**

1. "Buy-at-home" campaign—expansion of distribution
2. Expansion of wholesale trade
3. "Own-a-home" campaign
4. Opening of regional market
5. Face-lifting of State Street
6. Increased hotel facilities
7. Opening of the new General Electric turbine plant
8. Opening of government nucleonics laboratory at the Knolls
9. Opening of General Electric research laboratory at the Knolls
10. Modern central bus terminal
11. New light industries brought into the city
12. Commercial and passenger air service
13. First-class dining and dancing establishment

**SECOND FIVE-YEAR PLAN—1953-1958**

**CIVIC**

1. New Schenectady museum
2. New recreational areas and swimming pools
3. Women's college
4. Schenectady forest
5. Schenectady magazine for Mohawk valley
6. Crescent Park beautification

**COMMERCIAL AND INDUSTRIAL**

1. New union station plaza
2. Industrial incubator building
3. Another first-class hotel
4. Additional light industries
5. Adequate parking area
6. Style center of northeastern New York

## New ASPO and ASPDA Officers

CHARLES B. BENNETT, Director of the Los Angeles Department of Planning, was elected President of the American Society of Planning Officials at the National Planning Conference in Cincinnati on Tuesday, May 6. Mr. Bennett succeeds L. P. Cookingham, City Manager of Kansas City, Mo., who was elected to the Board of Directors of the Society.

Rafael Pico, Chairman, Puerto Rico Planning, Urbanizing and Zoning Board, was re-elected Vice-president. In addition to Mr. Cookingham, Frederick J. Adams, Chairman, Cambridge (Mass.) Planning Board, and John T. Howard, Director, Cleveland City Planning Commission, were elected to the Board of Directors.

The Association of State Planning and Development Agencies, which met during the two days following the ASPO meeting at Cincinnati, elected Raymond V. Long, Director, Virginia State Planning Board, as President to succeed Don C. Weeks, Director of the Michigan Planning Commission.

Other officers elected included Hugh Denny, Director, Missouri State Division of Resources and Development, Vice-president, and Kenneth L. Schellie, Director, Indiana Economic Council, second vice-President.

Elected to the Association's Board of Directors were Mr. Weeks, Hayden B. Johnson, Executive Director, Tennessee State Planning Commission; Hendrix Lackey, Director, Arkansas Resources Commission; F. A. Pitkin, Executive Director, Pennsylvania Planning Board; Sidney A. Edwards, Managing Director, Connecticut Development Commission; A. E. K. Bunnell, Consultant on Community Planning, Ontario Department of Planning and Development.

## *Rochester Council Studies City's Problems*

A CIVIC Development Council, organized in January of this year by the Rochester, N. Y., Chamber of Commerce, has been studying the city's current problems and laying the groundwork for an effective program of civic planning.

More than three hundred Rochester citizens are active on the nine major committees which have been formed within the Council. These committees are engaged in studies and reports on aviation, housing, major street plan and civic center, parking, public information, public market and food terminals, public transportation, traffic, and public works program and projects.

Already, housing conditions in Rochester have been surveyed, and a report and recommendations on some of the findings have been submitted to the mayor. The committees on public transportation, traffic, and parking are actively engaged in individual surveys covering the traffic control aspects of their particular fields. The committee on aviation is studying the proposed enlargement of the Rochester Airport, and the need for adequate runways to accommodate modern air passenger service. A new site is also being considered by another committee for a new public market and food terminal.

## *Billboards or Trees?*

SOME time ago *The New Yorker* quoted the following item from a western city newspaper:

> A petition signed by 29 persons has been filed with the City Council, asking that three palm trees on the south side of Fourth St., between Olive and Alamitos Aves., be removed. It was asserted that they obscure advertising signs in that vicinity. The petition was referred to the city manager.

*The New Yorker* answered, "What's the delay? Hasn't anybody got an axe?"

Anxious to follow up this development, THE AMERICAN CITY wrote to a local official to find out what had happened. The answer came—the trees had been removed, and the Park Commission there, which investigates such matters, generally recommends the removal of trees in business sections where the need seems apparent.

This seems to be another of the too-frequent instances in which billboards have been given preference over street trees. Experience shows, however, that the municipalities which are preserving and improving natural amenities, such as street trees and plantings, also are preserving the stability of their over-all property values. Certainly, more civic pride is stimulated by an area spaciously planned, than there ever will be by an area denuded of every vestige of natural growth.

# Overhead Storage Development

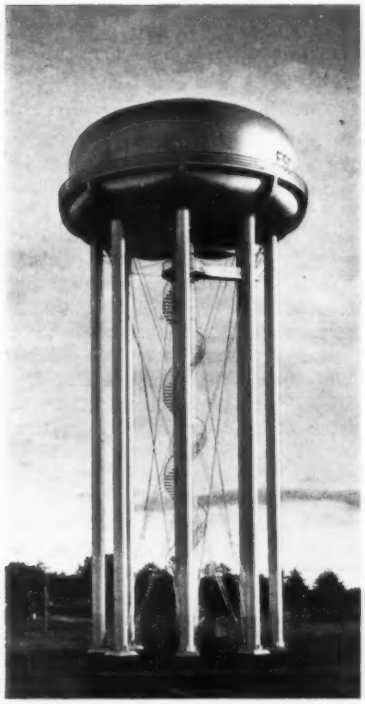
**. . . that adds beauty and strength to a waterworks' most imposing structure.**

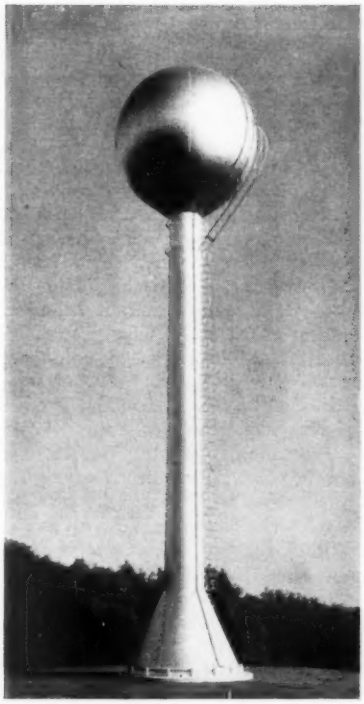
THE last fifteen years have seen overhead storage tanks change from ugly, black, solidly utilitarian structures dominating a community's skyline to a smooth, artistic tower that blends harmoniously with the landscape and is an improvement to the community's appearance. This was pointed out by Don Leach, district sales manager of the Chicago Bridge and Iron Co., in a paper delivered before the Indiana section of the American Water Works Association recently in Indianapolis.

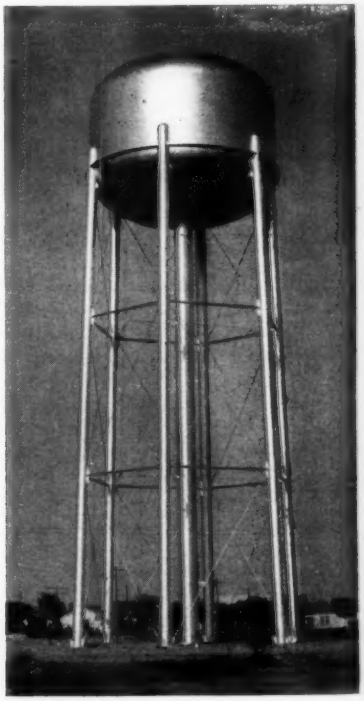
Prior to 1931, overhead storage tanks generally had either ellipsoidal or hemispherical bottoms and comical tops. Although the tanks were useful, they definitely were not attractive, and some communities went to the expense of covering them, with the cost of covering more than equalling the cost of the tanks themselves. However,in 1931, the late Mr. George T. Horton of the Chicago Bridge and Iron Co. expressed the opinion that a steel tank could be designed that incorporated beauty as well as utility.

**Far left: The "milk-stool" type has many strong supporters as well as opponents. Left: Standpipes take on added beauty by the use of ellipsoidal roofs, and, in the case of large sizes, by vertical pilasters that add strength as well as break up large areas.**

**Below, left: The tanks may or may not be built without balconies. The wind bracing, installed at limiting figure of 30 degrees, gives a graceful, hourglass effect to the supporting structure. Below, center: Waterspheres, supported on a single column, are an interesting departure from conventional design, but are more expensive and are limited to smaller volume and 125-foot top head. Below: All-welded tanks with tubular legs offer a type of overhead water storage that gives a minimum of maintenance difficulties. Its cost, however, is greater than that of riveted tanks under 300,000 gallons.**







Consequently, at his suggestion, the company sponsored a contest for attractive designs. This contest drew 152 entries, of which eight were chosen. The first prize incorporated the use of vertical pilasters carried into the supporting legs. This style is still often used.

The welding art proved a great advancement for the larger steel overhead tanks, and made possible the development of the radial cone that allows larger amounts of water stored at high heads. It also permitted the tanks to be supported on tubular columns and elminated the unattractive cross-bracing. Diagonal cable wind-sway bracing, installed at a limiting figure of 30° from the vertical, actually adds grace to the tower by giving it an hour-glass effect.

The tank most likely to be free from corrosion, Mr. Leach feels, is one that is welded and thus avoids the use of soft, corrosive rivets, and also has tubular supporting columns that are by their nature resistant to corrosion. Generally, the cost of welded tanks is higher than riveted, until the stored volume increases beyond 300,000 gallons.

The appearance of standpipes has also been improved by the use of ellipsoidal roofs that gives them a smoother appearance. Large standpipes use vertical pilasters to break up the "billboard" appearance.

To paint the tanks, a self-chalking white is being used successfully on the exterior. It gives a clean appearance and reduces temperatures at the same time. Aluminum still is used, but it has a tendency to become dull in time and loses its reflective ability.

# Financial Report Followed by Action In Winston-Salem

AN addition to the growing list of cities in which concrete citizen action has followed a well publicized analysis of municipal problems and finances is found in Winston Salem, N. C. Clarence Heer, Professor of Economics at the University of North Carolina, was requested to prepare the preliminary report by the Committee of One Hundred, a voluntary body of leading citizens interested in the city's problems. The report's main purpose was to bring home to the citizens certain urgent municipal issues and to stimulate discussion and debate. It was published in the *Twin-City Sentinel*, one of the two local newspapers of the Piedmont Publishing Company, which assumed the cost of the study.

## Principal Handicaps

In his analysis, Professor Heer found the city's main fiscal handicaps, making capital investment difficult, to be the following:

1. A large municipal debt which exacts a heavy toll for interest and redemption charges.

2. The fact that post-war inflation has increased municipal expenses more rapidly than it has expanded the city's revenue sources—making it no longer possible for the city to finance its general-purpose expenditures within the legal tax limit set by the state legislature.

3. The city's low average of taxable property caused by the expansion of its residential areas beyond its corporate boundaries.

4. The instability of the city's property-tax base because of the large proportion of its total, which consists of manufacturers' inventories and goods in storage.

Believing in the "exceedingly promising economic future" of Winston-Salem, Professor Heer made nine proposals for overcoming these handicaps:

1. Pay-as-you-go financing of municipal improvements that are not self-liquidating. Such a policy will increase the ability of the city to weather a future depression.

2. Six-year capital budget. To be effective, the pay-as-you-go method of financing municipal improvements requires both a master plan for the development of the city and a long-range capital budget based on the master plan.

3. Authorization of a special levy for capital improvements. This levy, requested from the state legislature, would not exceed 50 cents per $100 of assessed valuation, to be over and above the existing $1.25 tax limit for general purposes, and to be earmarked under proper safeguards for a special municipal construction fund. The proposed tax would decrease the overall tax rate in the long run.

4. Reassessment of real estate and adjustment of assessment ratio. It is estimated this would increase the aggregate of real property valuations by about 10%.

5. Extension of city boundaries. An immediate study should be made with a view to determining what annexations to the city would be economically and politically feasible at the present time, and what would be the most promising legal procedure for effecting such annexations.

6. Transfer of functions to the county. Welfare, health, hospital, and library services should be financed on the basis of uniform county-wide taxes. The suggested changes would relieve the city budget of some $360,000 of expenditure and would correspondingly increase the city's leeway under its present tax limit. City taxpayers, however, would still be required to contribute their fair share toward the cost of the transferred functions.

7. Allocation of one cent of the North Carolina gasoline tax to municipalities.

8. Municipal addition to state sales tax. Such a supplemental tax, not to exceed ½ of 1%, would be collected by the State Department of Revenue in conjunction with the state sales tax, and would be distributed back to the municipality making the levy.

9. Classification of industrial property. Such a measure, required from the state legislature, would permit municipalities at their option to classify industrial property for purposes of municipal taxation and to tax such property at not less than half the rate applicable to residential real estate. This would help prevent the movement of some manufacturing concerns beyond city limits to escape the additional taxes which the unwanted municipal services entail.

Professor Heer states that the steps thus far taken to improve the position of the city go considerably beyond the recommendations which appeared in the report.

## Legislation Enacted

Representatives of the city have secured enactment by the State Legislature of the following seven measures:

1. An act to permit the citizens of Winston-Salem to hold a referendum on the adoption of a city-manager form of government.

2. An act to permit the city to extend its boundaries by a simple majority vote of the combined electorate of the city and the areas to be annexed.

3. An act to permit Winston-Salem and Forsyth County to establish individual planning boards or a joint planning board to formulate a coordinated plan of development for the city and the county. After the adoption of a plan by the governing bodies of the city and the county, violators may be penalized and non-conforming uses terminated. The city is given zoning jurisdiction for three miles beyond its corporate limits, but it cannot exercise this power beyond a one-mile limit without concurrence of the County Commissioners.

4. An act to permit the city to transfer unappropriated balances to a special fund for the payment of bonded indebtedness.

5. An act permitting cities and counties to share in the proceeds of the state taxes on beer and wine which have been doubled for this purpose.

6. An act permitting the classification of agricultural products, including tobacco in storage, for local property tax purposes and permitting such products to be taxed at 60% of the rates applicable to real estate.

7. An act which will release certain state highways funds credited to the city for the repair and construction of Winston-Salem's streets.

In addition to these acts of the State Legislature, the Forsyth Board of County Commissioners has increased the assessment ratio of taxable property from 70% to 80%, and the City Board of Aldermen has petitioned the State Department of Tax Research to make a survey of new sources of municipal revenue and to report its findings at the earliest possible date.

# Services to Municipalities by the "1313" and "730" Agencies

## "1313"

PROBABLY the most widely known street address in the municipal organization field is 1313 East 60th Street, Chicago 37. This address, as most readers of THE AMERICAN CITY will recognize, is that of the headquarters building of the Public Administration Clearing House and of its associated national associations serving local governments.

Although it is—or ought to be—very difficult to find a city hall where a membership in one or more of these organizations is not held, there are probably few municipalities whose officials and department heads make the fullest possible use of the services available from the agencies mentioned. It is for this reason that THE AMERICAN CITY is glad to publish, as a check list, the following summary of services and list of publications of these organizations, whose primary function is to aid in increasing the efficiency of public administration in communities of all sizes.

In general, the various associations hold annual and other conferences and maintain information services and personnel services. Each issues to its members certain publications, mentioned below. If available to non-members, the price is indicated. Where special services are offered, these are named.

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PUBLIC ADMINISTRATION CLEARING HOUSE. Maintains the building that houses the "1313" agencies and conducts certain joint services for the organizations there, including the Joint Reference Library. P.A.C.H. publications include:

*The News Bulletin.* Tells the story of significant current developments in public administration in the form of press releases for daily newspapers. Subscription rate, $10 per year.

*Recent Publications on Governmental Problems.* Weekly check list of current books, pamphlets, and periodical literature in the field of public administration. $5 per year.

*Public Administration Organizations: A Directory.* Describes national organizations interested in problems of public administration and improvement of government, giving information regarding their membership, finances, secretariat, activities, affiliations, and publications. It also lists state, regional, and Canadian organizations. Issued biennially.

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PUBLIC ADMINISTRATION SERVICE. Conducts internship training program. Furnishes all levels of government with advisory and consulting services and conducts general administrative surveys, reorganizations, and installations of improved management systems on a cost basis.

Publishes handbooks, manuals and other publications in the field of public administration and acts as agent for the publications of its associated organizations, issuing a catalog entitled "Your Business of Government." Free on request.

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AMERICAN PUBLIC WELFARE ASSOCIATION. Maintains technical, consultant, and supervisory services to legislative and administrative authorities and to public welfare officials. This service is provided through field trips of the Association's staff and special studies and surveys. Publications include:

*Letter to Members.* Consists of concise and informative material on legislative and administrative activity in Washington, D. C.

*Public Welfare.* A monthly publication containing articles especially written by authors from all levels of administration and related fields.

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AMERICAN MUNICIPAL ASSOCIATION. This national federation of state leagues of municipalities holds an annual conference of league officers and public officials, as well as occasional regional meetings, and assists state leagues of municipalities with their annual and other meetings. The Association has two publications:

*American Municipal News.* Relates current developments in the field of government of interest to municipalities. Monthly, $3 per year.

*Washington News Letter.* Relates current activities of the Congress and the federal agencies affecting municipalities. Weekly, $10 per year; special rates on request to municipal officials.

Special research and informational reports are prepared for members and on a charge basis to non-members.

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AMERICAN PUBLIC WORKS ASSOCIATION. Sponsors annually a national congress on public works and municipal engineering. It participates in conferences of public works sections of state municipal leagues. Publications:

*Public Works Engineering News Letter.* Monthly, $5 per year.

*Public Works Engineers Year Book.* Contains proceedings of the National Public Works Congress. $3.

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AMERICAN SOCIETY OF PLANNING OFFICIALS. A clearing house for techniques, studies, and general information on planning in the United States and most foreign countries. Assists in the establishment of new planning agencies and gives advice on request to planners and planning officials. Sponsors the national planning conference and also arranges smaller meetings on special planning topics. Publications include:

*ASPO News Letter.* Monthly for members only.

Proceedings of the National Planning Conference, bibliographies, and collections of special materials pertaining to planning; research studies.

CIVIL SERVICE ASSEMBLY. Sponsors annual conference on public personnel administration. Eastern, central, and western regional groups also hold annual meetings. Publications include:

*Civil Service Assembly Newsletter.* Monthly, $5 per year.

*Public Personnel Review.* Quarterly, $5 per year.

Also publishes books and pamphlets on special aspects of public personnel administration.

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INTERNATIONAL CITY MANAGERS ASSOCIATION. Conducts the *Institute for Training in Municipal Administration* (established in 1934), through which eight courses are made available to individual municipal officials and to groups through the conference method of training, these courses being designed for use at the administrative level for on-the-job training. Encourages, advises, and participates in the conduct of state and regional training institutes for city managers. Publications:

*Public Management.* Summarizes monthly the significant news and developments in municipal government. Monthly, $4 per year.

*Municipal Year Book.* Lists important statistical data about United States cities, also analyses of trends, lists of publications, model ordinances, lists of officials, etc. $8.50.

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MUNICIPAL FINANCE OFFICERS ASSOCIATION. In addition to its own annual conference, informally assists as called upon in conferences of state and provincial finance officers' associations which are unofficially regarded as "chapters" in some localities. Publications:

*Municipal Finance.* Quarterly, $1.50 per year; 50 cents per copy.

*Municipal Finance News Letter.* Semimonthly, joint subscription with Municipal Finance, $10 per year.

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NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual national conference on assessment administration is held, as well as occasional regional conferences. Assistance is also rendered in the arrangement and conduct of state conferences and schools for assessing officers.

*Assessors News Letter.* Monthly, members only.

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NATIONAL ASSOCIATION OF HOUSING OFFICIALS. The annual meeting of the Association is held each fall. Each of the eight regional councils of this Association also holds regional conferences, usually in the spring of the year. Publications:

*Journal of Housing.* Monthly, $5.

*Housing Directory.* Every two years; to non-members $3.

*Local Authority Letters* on special problems, approximately six to eight per year, issued to members.

*NAHO Bulletins,* to individual members on special subjects.

*Proceeding* of annual meetings to those paying registration fee for annual meetings; also special committee reports, reprints, and research reports on special subjects.

### "730"

Another address of special importance in the fields of municipal government and administration is 730 Jackson Place, Washington, D. C. The four national organizations having their headquarters at "730" have furnished THE AMERICAN CITY with the following information regarding services and publications:

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THE UNITED STATES CONFERENCE OF MAYORS. National organization of over 250 cities of the United States of 30,000 population and over. Supported exclusively by public funds appropriated by member municipal corporations. Holds an annual conference and, from time to time, regional meetings. Deals with all municipal problems which are national in scope and which are of mutual and common concern to the larger cities, with special emphasis on the relations between the Federal Government and the cities. Publications:

*United States Municipal News.* Published twice a month; $5.00 a year.

*City Problems.* Annual proceedings.

Maintains Municipal Information Service for member cities, conducts research, and publishes reports on municipal affairs.

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NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. National organization of law departments of over 450 municipal corporations of the United States. Holds an annual national conference. Serves as a clearing house for municipal legal experience. Publications:

*Municipal Law Journal.* Monthly.

*Municipal Law Court Decisions.* Monthly.

*Municipalities and the Law in Action.* Annually.

Maintains information service on legal problems, conducts research, prepares reports on municipal legal questions, drafts and publishes model ordinances and statutes, and files briefs *amicus curiae* in the courts in cases of national concern to the cities.

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NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING, INCORPORATED. Non-profit educational organization of purchasing agencies of states, counties, cities, villages, towns, boroughs, provinces, publicly owned utilities, public schools and colleges, prisons, governmental hospitals and other institutions as well as port and housing authorities and other public agencies and instrumentalities of the United States and Canada. NIGP is devoted to the improvement of governmental buying through research and the interchange of professional information and ideas. Publications:

*NIGP Letter.* Summarizes monthly the significant news and developments in the field of public buying throughout the United States and Canada.

*Periodical Publications.* Special studies on surplus property disposal, governmental buying practices and procedures, etc.

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NATIONAL INSTITUTE OF CITY CLERKS. National organization of city clerks, city recorders, city secretaries, and clerks of council, with membership held in the name of the city. Conducts an annual meeting for the interchange of information and experience among city clerks. Serves as a clearing house of information and experience on problems within the jurisdiction of the Office of City Clerk. Publications:

*News Letter.* Available to members only.

*Annual Proceedings.* Maintains information service on problems affecting the city clerks, conducts research, and prepares reports on subjects of national interest to the city clerks.

## Scarsdale's $1,066,000 Question

RESIDENTS of Scarsdale, N. Y., were presented with a booklet recently containing "facts, figures, and points of view" on whether to use cash or credit in paying for post-war improvements costing $1,066,000.

The unusual and unprecedented sixty-page booklet, prepared by the Village Board of Trustees, was issued for the purpose of obtaining the opinion of local citizens and organizations. The 1946 to 1947 construction program of the municipality is being conducted on a "pay-as-you-go" basis, a decision recommended by many Scarsdale organizations and individuals. Trustees point out that the citizens have, therefore, had an opportunity to observe this plan in action for a year, and now the Board would like to know whether they want it continued.

Although recognizing the fact that borrowing is necessary and desirable for many municipalities, especially those which are new and fast-growing, the trustees advocate "pay-as-you-go" for Scarsdale. They state that this method is recognized by financial experts as particularly appropriate for use by an established community in financing replacements and extensions of its plant. The pamphlet also shows that the saving of interest payable on borrowed money would be quite large under such a method of financing.

Citing examples of low-debt communities elsewhere, the trustees urge the adoption of a definite long-term financing policy, to be departed from only in the event of urgent necessity.

The Trustees give the following supporting arguments to build up their case: Pay-as-you-go financing is said to induce caution and economy in planning and undertaking projects, because the full cost is reflected promptly in the tax rate; "pay-as-you-go" avoids building up a large new debt, the repayment of which with interest in annual installments might cause hardship in time of depression; "pay-as-you-go" relieves future generations from sharing the cost of long-life projects as future generations will have to provide many additional projects and will inherit large national and local debts.

## Detroit's Experience With Voting Machines

DETROIT has been experimenting with voting machines on a small scale for several primaries and elections. In 1946 the city purchased 110 machines from the Automatic Voting Machine Corporation and used them in eighty-five voting precincts at the November election.

The machines worked out remarkably well. The members of the precinct boards apparently found no difficulty in following instructions. They were opened, operated, and closed at night without difficulty.

The mechanical difficulties were slight, consisting of two or three fuses blown out and one or two other minor problems which were quickly adjusted. With only one machine in each of sixty-five precincts and two machines in each of twenty larger districts, the unusually large turnout of voters resulted in some delay and waiting in line. Further use of the machine and familiarity with its operation, however, will cut the voting time by at least 50 per cent.

Despite the waiting lines during certain rush periods of the day, the voters, with but few exceptions, expressed themselves as favoring machines to paper ballot voting and recommended the continued use of mechanical devices in future elections.

The returns from the machine precincts, regardless of line-ups at closing time, were all delivered hours before the returns from the paper ballot precincts began coming in.

The Detroit Common Council has approved a request by the Election Commissioners for 200 more machines. Bids will be asked for as soon as funds are available.

THOMAS D. LEADBETTER
*City Clerk and Chairman of City Election Commission, Detroit, Michigan*

# Manager System Serves Small City Well

**Winchester, Va., under city manager plan since 1916, reports continued progress in municipal improvements.**

THE city manager plan has paid dividends in Winchester, Va. It has given this city of approximately 15,000 a well-ordered plan of operation, a method by which it can be executed smoothly, and an opportunity to visualize the future clearly enough to expect the vision to become reality.

For example, Winchester voters went to the polls last December and approved overwhelmingly a council-manager-sponsored $650,000 bond issue for a new sewage treatment plant for which plans have already been completed (see page 39, THE AMERICAN CITY, May 1943). A day later the first bus system ever to operate in Winchester went into service. Almost at the same time the municipality's first parking meters were installed, and plans were completed for a retirement system under state control for all employes of the city. This plan went into effect on January 1 of this year. These improvements came about because of diplomatic coordination by City Manager S. L. Grant.

### Many Jobs

Taking the key position in all of these activities is only a part-time affair for Mr. Grant. He is also superintendent of water works (a position he has held since 1931), purchasing agent, and director of public welfare. In addition, he handles much of the work of the auditor's office. He maintains a personal supervision of all construction by the city.

Under the Winchester city manager plan, the heads of some of the municipal departments are responsible to the city manager, who, in turn, is responsible to the council. Winchester differs from standard practice, however, in that the manager's control over the health department is limited to supervision of the sanitary inspector, and he has no control over the work of the police, fire, and public school departments, which are supervised by council committees. He recommends the funds for the above departments and is their purchasing agent.

### Water and Sewerage

The Winchester Water Department is one of the oldest in the country. Several public wells were sunk previous to 1756 and a contract was awarded for the first pipeline in 1800. This contract called for use of a horse-powered device for boring 2-inch tubes in a number of large logs, which were connected with 1-inch cast iron pipe. The first pipe was actually laid in 1808, the citizens digging the ditches in front of their property and the contractor furnishing the logs and laying them.

City Manager S. L. Grant

In 1826, Winchester again pioneered in the small city field, when it started to lay cast-iron pipe for a six-inch main. Another main of the same size and type was laid in 1856.

Although these were pioneer steps in the supply phase of Winchester's water works, it remained for city manager supervision to give the water added treatment, by superchlorination for taste- and odor-free excellence and for an added factor of sanitary safety. Mr. Grant dechlorinates with sulphur dioxide to produce roughly a 0.5 ppm "free" residual.

Winchester's first sewage treatment plant was placed in service in 1910, which made the city one of the first small Virginia towns to treat its sewage. The plant was changed considerably in 1915 and enlarged in 1931. But rather than attempt to enlarge and bring the old plant up to date, the city manager has recommended that an entirely new plant be built. The recent approval of the $650,000 bond issue will make this plan possible.

The city has also done much to provide good streets. Before 1900, the principal streets were paved with brick and the outlying streets surfaced with macadam. Much work was done during the 1920's, when purchase of stone by contract proved to be more profitable, but, despite its small size, the city continues to find it profitable to operate a municipal asphaltic concrete plant, built by its own workmen.

The city's street lighting system has also undergone many changes in keeping with the times. The first appropriation for this work was in 1855, when provisions were made for using artificial gas. The changeover to electricity occurred prior to 1900.

The City Manager negotiated a contract for street lighting with the Northern Virginia Power Co. providing for 488 modern lights of 1000 to 6000 lumens at a cost of approximately $1.100 per month, which includes fixtures, replacements, and current and is equal to slightly over 3c per kw-hr for complete service.

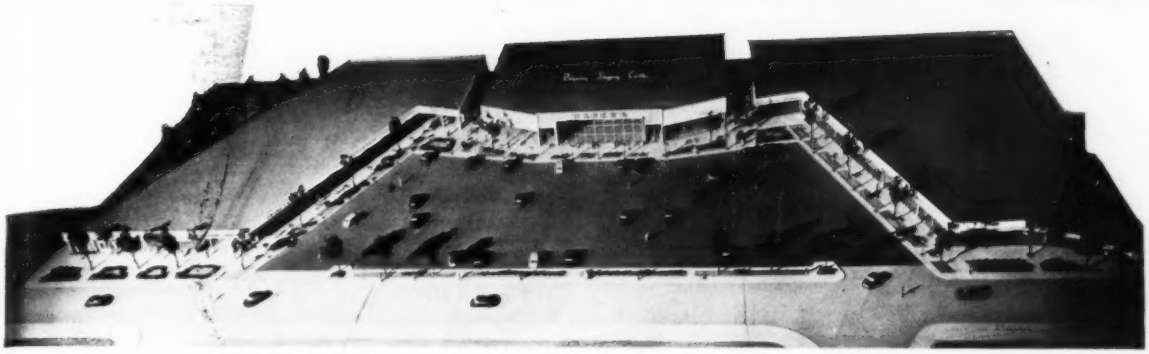
### Municipal Airport

During 1943, the city purchased a municipal airport and since that time has acquired additional land to lengthen the runways. Despite its present population of only about 15,000, Winchester will soon have a field sufficiently large for commercial airliners.

Winchester has also planted many street trees. As early as 1874, city funds were appropriated for this purpose. In 1923, a park commission was created and assigned the task of caring for the municipality's many beautiful trees.

Before January 1, 1947, the city removed and disposed of its garbage, ashes, and refuse by private contract. This unsatisfactory method has been abandoned, and the work is being done with city forces and equipment. An order has been placed for one Gar Wood Loadpacker and one Gar Wood Bucket Loader, which will make it possible to provide for collections twice a week throughout the year.

Plans and money and sites are available for the new 3-mg reservoir, additions to the city water distribution system, and a new municipal incinerator. At present the architectural firm of Smithey and Boynton, Roanoke, Va., is engaged in preparing plans for a new jail and for reconstruction of the present city hall or construction of a new building. Extensive street improvements and additions to the storm drainage system are also to go ahead at an early date.



**Looking down on a model of the Ridgeway Shopping Center showing the ample space allotted for customers' autos.**

# Thirty-three Cars to a Store

ONE type of competition which central city business areas will face in the future is clearly illustrated in the Ridgeway Shopping Center project, Stamford, Conn., the first section of which was dedicated recently by Mayor Charles E. Moore. The $2,000,000 development, covering a ten-acre tract, represents one of the first efforts in the East to meet the challenge of automobile shopping by providing a modern, completely integrated trading center which will eliminate parking snarls and traffic jams.

The Ridgeway Shopping Center is located approximately one mile from the congested main business section on Summer Street, a thoroughfare which receives the greatest portion of traffic-feed to the city's center. Designed by the firm of Alfons Bach Associates of New York, the center will eventually have some thirty individual stores and will provide a parking area for approximately 1,000 automobiles. It is being constructed in three units. The first is now in operation, and the last is to be completed by early 1949.

Each store is being given separate architectural treatment and is specifically designed for the retailer's requirements, making an attractive, harmonious picture. Among the many unusual features is a continuous concrete canopy 6 feet wide along the perimeter of the buildings, which will permit shoppers to walk under cover to all the stores. Each store will have complete, full-view glass fronts, and the 24-foot sidewalk, planted with flowers and shrubs, will have a dull gray-black surface to prevent glare in the shop windows. At night the sidewalks will be lighted with semi-indirect lighting coming from the concrete canopy. The buildings are being set back sufficiently to provide for possible future widening of the street fronting the project.

Alfons Bach, president of the corporation developing the project, believes that shopping centers of this type are adaptable, with variations, to any city which is expanding and growing.

## Study of City Trends Required

Mr. Bach warns, however, that anyone attempting a project of similar character "must be completely versed in the past history and future possibilities of the city. He should have a high degree of personal integrity and include in his planning the civic responsibility for creating beauty as well as a practical solution of automobile shopping."

The development of the Ridgeway Shopping Center is the culmination of a five-year study of the whole problem of retailing trends. A Stamford resident himself, Mr. Bach conducted surveys in that city which showed that there were 89,000 automobiles in its wealthy trading area of approximately 115,000 population. Yet, with 80% of all shopping done "on wheels," Stamford itself provided parking space for only 2,000 cars at any one time, to serve 1,107 retail stores.

## North Shore Center

Another example of "recentralization" of mercantile business in sections away from central city areas will be the North Shore Center, to be located in North Beverly, Mass.

Plans for this development will be described in an early issue of THE AMERICAN CITY.

**This photo shows some of the completed stores of the Ridgeway Shopping Center which front on the main thoroughfare.**

# 10 MORE LAYNE UNITS
## FOR WICHITA, KANSAS

**Wichita—magic city of progress—cross roads of the western airlines—growing and prospering has just ordered ten more complete Layne high efficiency Well Water Units. This makes a total of thirty-five, with a daily production capacity of 45 million gallons of water. Here again, quality, sturdiness, and overall efficiency of Layne Well Water Systems have scored definite superiority.**

Wichita long endured a dangerously low water supply, but Layne top flight hydrological engineering skill explored and found water bearing strata—and then installed thoroughly modern water producing equipment.

Wichita is only one of many cities that profited by placing its water producing problem up to Layne—the world's most experienced ground water developers. Such proven skill is worthy of serious consideration by all cities, factories, railroads, refineries and irrigation projects that need more water.

Unusually interesting and valuable bulletins, catalogs, etc. on water producing equipment and well installation may be obtained by writing

LAYNE & BOWLER, INC.
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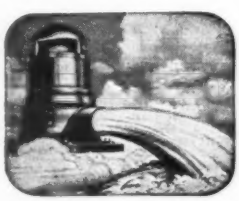

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# Plan Urged for Midtown Traffic

TO FORESTALL deterioration and obsolescence in midtown Manhattan, Cleveland Rodgers, a member of the New York City Planning Commission, recently urged before a meeting of the Thirty-Fourth Street Midtown Association a broad and comprehensive approach to the traffic congestion problem. His suggestions, which formed a City Planning Commission minority report last year, are now being studied by several New York civic associations as an alternative to the Traffic Committee's recommendations which included a 30th Street express highway at an estimated cost of $46,000,000.

Mr. Rodgers warned that execution of his program would be costly. But he explained that his plans for a midtown Manhattan expressway would not be much more expensive than an elevated expressway, and that the problems are no more difficult than those involved in other projects either completed or planned for New York. Moreover, he declared, midtown district values are based on the fact that more people are daily attracted to it than to any like area in the city, and that it is necessary for the city to maintain and enhance advantages derived from the concentration and grouping of activities in specific areas.

The following were among the proposals submitted by Mr. Rodgers:

1. Crosstown tunnels connecting the Lincoln Tunnel to New Jersey on the West Side and the Queens Tunnel on the East Side. These tunnels are proposed for 36th and 37th Streets, with entrances and exits in the center of the island as well as at both ends of the tunnels, the total cost being estimated at $70,000,000.

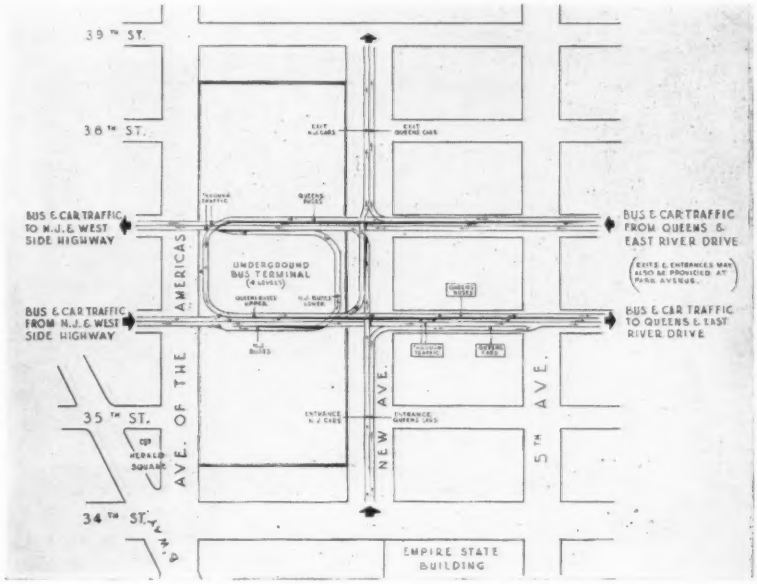
2. An underground, four-story bus terminal on Sixth Avenue between 36th and 37th Streets, with subterranean access to and from the crosstown tunnels. This bus terminal would be subsidized by a revenue-producing office building above ground and by terminal fees.

3. A new avenue to be constructed midway between Fifth and Sixth Avenues, running from 34th to 39th Streets. This avenue is planned where property valuations are low. It is expected that the cost of its construction would be offset by benefit assessments and increased taxable values resulting from the improvement. Ramps at both ends of this avenue are planned for access to and from the crosstown tunnels. A number of new projects and buildings have been proposed for this new avenue which could readily be a part of a general redevelopment plan.

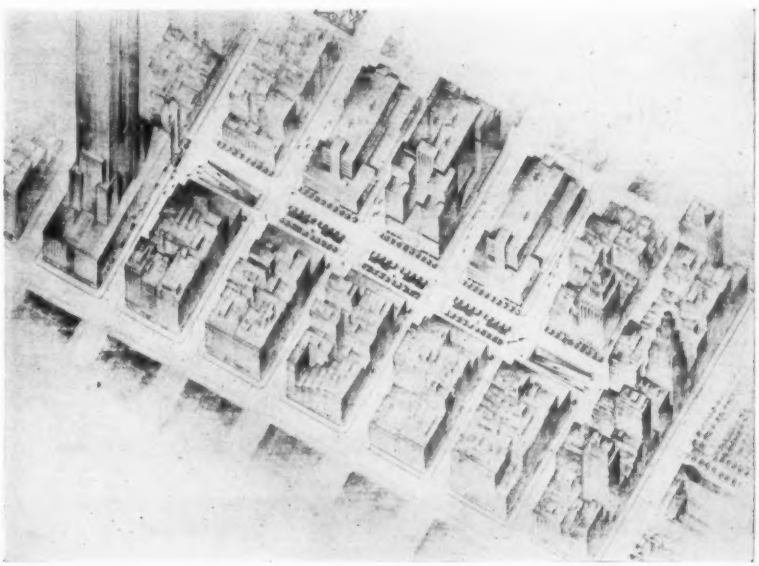
4. Utilization of the obsolete Park Avenue tunnel as part of a tunnel from 34th to 41st Streets to provide access to the crosstown tunnels for airline traffic, with an exit and entrance at Park Avenue and 32nd Street.

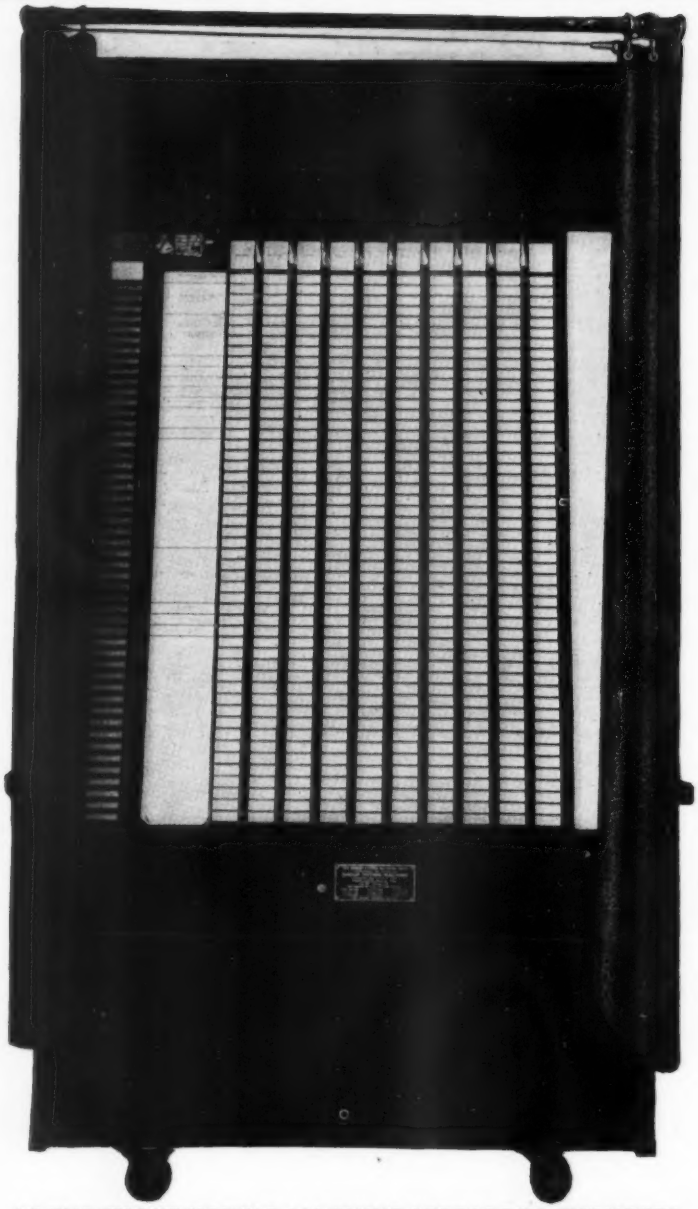
5. Underground parking areas in the midtown, adjacent to the proposed tunnels.

6. Extension of the shuttle under 42nd Street from river to river, to serve as a crosstown facility to reach the United Nations site and other areas on the east and west sides.


39 TH ST.
38 TH ST.
BUS & CAR TRAFFIC TO N.J. & WEST SIDE HIGHWAY
BUS & CAR TRAFFIC FROM N.J. & WEST SIDE HIGHWAY
AVE. OF THE AMERICAS
UNDERGROUND BUS TERMINAL
BUS & CAR TRAFFIC FROM QUEENS & EAST RIVER DRIVE
BUS & CAR TRAFFIC TO QUEENS & EAST RIVER DRIVE
NEW AVE.
5TH AVE.
35 TH ST.
HERALD SQUARE
34 TH ST.
EMPIRE STATE BUILDING

**Above: Diagram of a section of City Planning Commissioner Cleveland Rodgers' midtown improvement plan. His proposals call for the construction of a new avenue, crosstown tunnels on 36th and 37th Streets, and an underground bus terminal and parking areas. Below: The construction of a new avenue running from 34th Street (left) north to 39th Street (right) midway between Fifth and Sixth Avenues is one of the proposals made by City Planning Commissioner Rodgers. As part of a comprehensive traffic solution, the plan for the new avenue calls for ramps leading to crosstown tunnels and underground parking areas. It is expected that the cost of the new avenue would be offset by the increased assessments on property improved.**





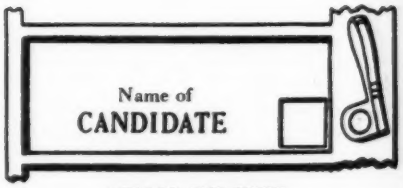
**AS THE SHOUP VOTING MACHINE APPEARS TO THE VOTER**
The above view is of a 10-column, 50-row electrically operated machine. When the voter turns the switch, the curtains automatically close behind him, forming a private booth and assuring him absolute secrecy.

# SHOUP

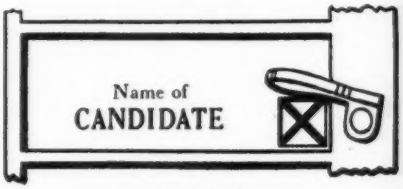
## *Electric*

## Vertical Type Ballot

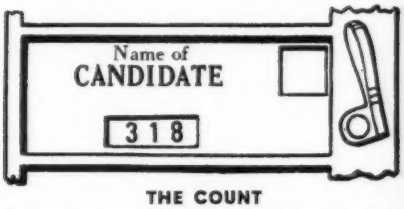
# VOTING MACHINE




**BEFORE THE VOTE**
**1** —Appearance of each candidate's space prior to voting
(Note blank Square)




**THE VOTE**
**2** —After voter has cast vote for his particular candidate
(Note ☒ Mark in Square)




**THE COUNT**
**3** —As results appear, for each candidate, when exposed at close of polls. (Directly on the face of the Machine)

**THE VOTER INSTANTLY UNDERSTANDS HOW TO CORRECTLY CAST HIS VOTE!**

**1—The Vertical Type Ballot →** Illustrations above show the large space for printing **CANDIDATE'S NAME.**

**2—The Moving ☒ Mark →** No such thing as voting **UNDER CANDIDATE'S NAME INSTEAD OF OVER HIS NAME BY MISTAKE!**

**3—Results by Candidate's Name→** No decoding necessary!

**SHOUP VOTING MACHINE CORP.** Girard Trust Company Building Philadelphia, Pa.

# Reserves, Bonds, and Taxes

**Three items from the 1947 Conference of the Municipal Finance Officers Association held at the Hotel Pennsylvania, New York, May 27-29, 1947**

### Reserves for Public Works

LONG-RANGE financial planning on the part of cities and towns was advocated by John W. Prather, City Auditor of Ames, Iowa, as a means of solving financial problems arising from the demand for new improvements and added municipal services.

Recommending that cities anticipate major improvements and over a long period of time build a reserve which will be ear-marked for specific purposes, Mr. Prather pointed out that excessive financing costs can be eliminated by this means. Along with this, he suggested that a cash reserve be established to make improvements and replacements necessitated by obsolescence.

Asserting that such a reserve could be invested and increased by interest, Mr. Prather cited an example of a $500,000 improvement on a 20- to 25-year bond issue which would cost approximately $750,000, including financing and interest costs. If this improvement were planned ahead and reserves built up with accumulated interest, the actual cost would be approximately $350,000—making a gross savings in the cost of the improvement of $400,000, he said; and added:

> Some argue that in setting up this plan you are taxing the present generation for future improvements, which is true, but under the other system we have not hesitated in the past to tax a future generation for present improvements. I admit that this is a controversial subject and may be a bit idealistic, but it is gaining popularity and is used in modified form in some states and government subdivisions. I firmly believe that most cities and towns can, if they plan their functions and improvements over a term of years, go a long way in solving their own financial problems by analyzing their services and placing them on a self supporting basis, thereby easing the real estate tax problem.

### Revenue Bonds

State grants of authority for municipalities to issue revenue bonds with no more limitations "than are absolutely essential," was advocated by David M. Wood, bond attorney.

Pointing out that the revenue bond is issued to finance a revenue-producing enterprise, Mr. Wood said:

> The contributions to its support are made by the citizens only when, as, and if, they make use of the facility. The facility must justify itself economically. There is not, therefore, the same reason for circumscribing the discretion of the managers of such an enterprise as there is in the case of enterprises supported by tax revenues.
>
> The statutes should give the managers of the project powers broad enough to enable them to finance the acquisition or construction of the project upon the most advantageous terms and to make use of the facility attractive to the public. The managers of the project will be subject to the merciless control of the profit and loss statement and, in my opinion, that control will ordinarily be sufficient to protect the public.
>
> Public sale of revenue bonds was described by Mr. Wood as "impracticable" unless the project has been operated by the municipality for a period of years, so that prospective bidders can be furnished with engineering reports about the physical condition of the properties and audit reports showing the results of operation over a reasonable period. "Under such circumstances," he said, "a public sale will ordinarily be feasible, but where the municipality proposes to construct a new plant or acquire an existing plant from private owners, an attempt to sell the bonds at public sale is futile."

### Tax on Amusements

A city tax on amusement admissions was recommended as an effective source of new municipal revenue by Jack Mulhern, City Comptroller of Bellingham, Wash., who said that during 1946 revenues from admissions taxes in Bellingham ran close to $1.50 per person for the urban population.

The experience of Bellingham, and of most cities adopting this form of revenue, has been that it is a very easily administered tax. The collection and administration costs have been almost negligible, because the federal tax applicable to the same forms of entertainment has to be compiled by the operators, and one additional form filled out for the city added very little to the problem and became almost automatic in their handling of the returns to the city. The tax forms used are simple and easily understood, Mr. Mulhern said.

In reviewing the experience of cities in the state of Washington with this tax, Bellingham's Comptroller said:

> If your municipality is in need of additional revenue sources, then admission tax is one that you can justly consider for adoption. It is borne by those who are willing to spend their money for entertainment, whether they are residents, or come from surrounding urban areas, or transient, and it is a minor expenditure on their part throughout the year. Yet a healthy return to the city is obtained therefrom.

## Local Government in Mississippi

A recent study, *Forms of Municipal Government in Mississippi*, by Dr. Robert B. Highsaw, Director of the Bureau of Public Administration, School of Commerce and Business Administration, University of Mississippi, analyzes the characteristics of the two main forms of municipal government found in the state—the mayor-council and the commission types—and explains why the city-manager form is not found there.

Noting that the weak-mayor variation of the mayor-aldermen form is found in approximately 258 Mississippi municipalities, Dr. Highsaw states:

> For most of these, the plan is well adapted. Of these municipalities 165 have 1,000 or fewer inhabitants, and only three cities using this form exceed 10,000 in population. Mayor-aldermen government as employed in Mississippi is well suited to small municipalities because they are confronted with few of the administrative issues which result from departmentalization of municipal activities, and because many of them do not require the services of a full-time professional administrator. Under these circumstances, the mayor-aldermen form preserves the best of our traditions of local self-government.

But elsewhere, Dr. Highsaw finds that this happy situation does not always hold true. In the larger municipalities in the state, the weak-mayor type does not function quite so well chiefly because it is difficult to "find a single municipal officer upon whom the hand of praise or censure for the conduct of municipal affairs can be fairly placed."

Dr. Highsaw concludes that no hard and fast rules can be set down as to what form of government is best for any municipality. "That form of government is best which maintains the interest of individuals in municipal affairs, draws from among them the best talent, and. . . secures for them the service which they require with the least possible waste of friction".

# "Trolley Coaches IDEAL To Reduce Traffic Congestion"

***—says C. W. Gifford***
***one of the nation's foremost transit operators***

"To reduce street congestion effectively, public-transit vehicles must be fast, big, reliable, maneuverable, and popular with the public," says C. W. Gifford, president of the Des Moines Railway. "That's why, without question, the trolley coach is the ideal vehicle."

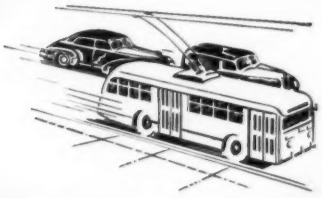
Yes, trolley coaches meet the specifications a transit vehicle must have to reduce traffic congestion. Because they start and stop fast enough to keep pace with automobiles in city traffic, trolley coaches move ahead in any traffic lane. With its high schedule speed and large capacity, the average 44-passenger trolley coach can carry a load equivalent to that of 25 automobiles (based on the average automobile load of 1.75 passengers).

In every city where trolley coaches operate and public opinion has been polled, these smooth, clean, quiet electrics have won by a landslide. In Des Moines, for example, surveys, which cover eight years, indicate that trolley coaches are most popular.

Every public-transit rider uses one-seventh as much street space as an automobile passenger. That's why a higher transit riding habit in your city will greatly lessen traffic congestion and the parking problem. Why not make sure that more people will use public carriers regularly by encouraging your local-transit officials to modernize their service with the vehicles preferred by millions! *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

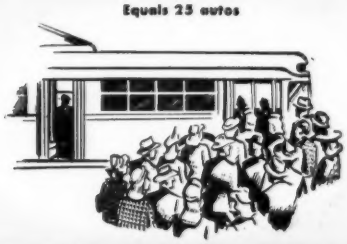
**FAST STOP AND GO . . .**

Leads traffic



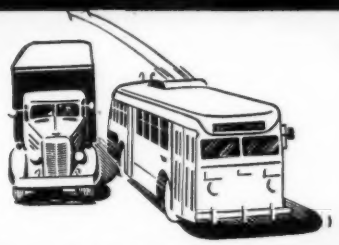
**LARGE CARRYING CAPACITY . . .**

Equals 25 autos



**HIGH SCHEDULE SPEED . . .**

**GREAT MANEUVERABILITY . . .**



Gets around obstacles

**PROVED POPULARITY . . .**

*See LIFESTREAM OF THE CITY, the movie that shows how to minimize traffic congestion. Your G-E representative will arrange for a showing.*

. . . in every vote taken

**GENERAL ELECTRIC**

137-151

# New Ideas to Ease London Traffic Problem

**If pedestrians cannot be removed from a traffic artery, then traffic must be withdrawn and sent elsewhere.**

SIR ALKER TRIPP, C B. E.

IN OUR post-war town planning, a well-designed road plan is essential. In the ten years before the war there were more than 2,000,000 people killed or injured in Great Britain. The root cause is simple. In central London every one of the roads (streets) was built in the day of horse-drawn vehicles and has not been brought up to date with the advent of autos.

Two things obviously have to be done: First, we have to have accommodations for standing vehicles. In London, we want accommodations under squares, under parks, under buildings, in multi-story buildings, and on open sites wherever available. The parking spaces must be at frequent intervals; the accommodation must be on the spot where it is wanted, not where it can be provided most easily.

Second, we must keep the through traffic out of London. This can be done by an effective ring road, such as Riverside Drive and the East River Drive in New York City. On an elevated or sunken road the journey would take seven minutes as opposed to the sixteen-minute interval under present conditions; moreover this type of road would attract all the through traffic. A plan has been worked out that affords nonstop movement around the ring, but the cost will be great.

The casualty maps show that the great majority of accidents is along the main traffic routes and that pedestrians represent 60% of the fatalities in London. Only when inhabitants are exposed to the traffic do they become road casualties. If we cannot withdraw shopping crowds from a traffic artery, we must withdraw the traffic and send it elsewhere. The main traffic flows must be diverted from the daily haunts of the populace.

The first step towards planning is to get rid of the nondescript roads. My view is that in England we must take account of the three generic types of road, namely: arterial, those roads for fast motor traffic only; sub-arterial, the other main traffic conduits, present and future; and local or minor.

The local roads can be divided into as many categories as the town planner may desire: shopping, residential, and so forth. On these roads, traffic considerations must be subordinated to the needs of the local frontages and pedestrians. On arterials and sub-arterials, the interest of the traffic will be regarded as absolute.

Let us summarize some major principles that are required. Sidings must be provided. A sharp and absolute line must be drawn between the traffic conduits and local roads. There must be no overlap between the two classes of roads, because compromise means casualties. Building developments must be divorced from traffic roads. This can be complete only in the case of new roads. Any building development on traffic roads is an evil. All existing roads which will be traffic roads in the future should be scheduled at once and kept clear of further building development. A case in point is that of a congested shopping center. More road space is wanted. This space should not be provided by setting back frontages as most people seem to assume. It will be quite a decent shopping street if the superfluous through-traffic is cleared out. A parallel road of sub-arterial status should be provided in the cheaper regions of the back-yards, which would drain off all the through-traffic that had no business in the shopping center of town.

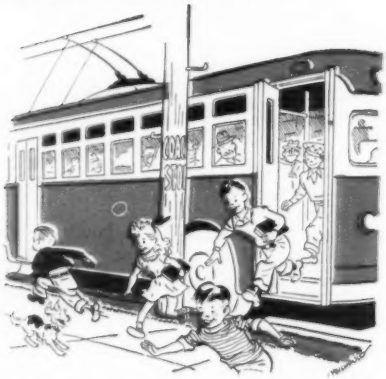
Pedestrians would not become road-casualties had they not become exposed to the road traffic. New roads fitted to meet the need of motor traffic, as distinct from roads built for housing, are no place for pedestrians. Old habits die very slowly, and we are overburdened with tradition. It is the horse-and-cart mentality that exposes pedestrians to express-speed traffic; that makes people want to build residences and shops along express highways; that keeps alive the nondescript road.

If the principles which I have suggested are respected by the town road planner there is bound to be an improvement in traffic and pedestrian conditions. The application of these principles will often be extremely difficult, but we must never give in. I do not for a moment presume to suggest what Americans should do, but I have tried to indicate some principles which seem to me to be of fundamental importance in London and throughout Great Britain.

* Essential substance of an article in the April 1947 Traffic Quarterly published by the Eno Foundation. Sir Alker Tripp is Assistant Commissioner of Police, Scotland Yard, London, England. He is in charge of London's traffic control.

**In Dagenham, Essex, England, Safety Sam, a London "bobby," demonstrates to the children both the correct and incorrect way to cross a street, and impresses upon them the necessity of watching the traffic lights and policeman's signal. Dressed in striped uniform with orange hat, Sam's demonstration is remembered. It is said that this practical form of education has resulted, wherever employed, in the reduction of traffic injuries among children.**

## Parents Like Trolley Coaches because

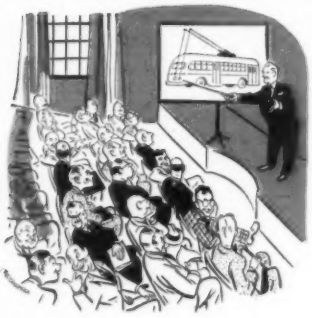


**THEY'RE SAFE.** Children get on and off at the curb . . . not in the street. Electrocam braking minimizes skidding. No gasoline fire hazard.

. . . **DEPENDABLE.** Constant, unfailing power supply and maneuverability make them the most reliable trackless transit . . . breakdowns are virtually unknown.

. . . **CLEAN.** Odorless heat and freedom from obnoxious exhaust fumes make less dirt for children's clothes . . . they stay clean longer.

## Civic Leaders Like Trolley Coaches because



**THEY'RE QUIET.** You hear only the soft whisper of rubber tires . . . the quiet whir of electric motors . . . no clashing gears . . . no noisy engines.

. . . **A PUBLIC ASSET.** It's a matter of record that trackless-trolley lines enhance property values . . . an asset to any community.

. . . **FAST.** Their speed-with-safety, plus maneuverability, promotes development of outer residential areas within quick riding distance of downtown.

## Traffic Engineers Like Trolley Coaches because

**THEY'RE MANEUVERABLE.** Their ability to swing wide around obstructions, or to pass "local" coaches on the same overhead system, speeds up all traffic.

. . . **DEPENDABLE.** Unfailing, unlimited power source, plus reliability of electric drive, keeps Trolley Coaches moving in all weather over any terrain . . . no freeze-ups . . . no overheating.

. . . **SAFE.** The safest rubber-tired public vehicle, Trolley Coaches cut loading accidents . . . minimize skidding . . . eliminate gasoline fire dangers.

**Find out today how Trolley Coaches serve every segment of your community . . . homeowners, hospitals, commuters, old folks, teenagers, shoppers. Call your nearest Westinghouse office. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.** J-15136

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# PROOF OF DUAL Dependability!

## 259 cities control parking problems with DUAL Automatic Parking Meters

From Canada to California to Florida, Duals are doing an unexcelled job of helping control parking—of simplifying traffic regulation.

They're doing such a fine job because every Dual part and feature is designed, engineered and built to be *dependable.*

For example, *the meter movement—the most vital part of any meter—is manufactured by the makers of the famous Seth Thomas clocks.* Housed in cast aluminum, Duals are *weatherproof.* The meter setting works *automatically* —no levers to cause servicing problems. Duals are *tamper-proof*—have a specially designed "pick-proof" coin compartment lock. They're *long-lasting*—rugged and sturdily built.

And, Dual income helps pay for off-street parking facilities—provides steady revenue for other municipal services long after Duals have paid for themselves.

Sum up these advantages. They're the proof of Dual dependability—the reasons why 259 far-sighted cities prefer them. Find out how Duals can help solve your community's parking problems—can be a profitable community investment. Write for free, informative bulletin DU-501, or call upon our engineers for helpful service.

*Photo above shows a few of the 3200 Dual Meters that service Cleveland, Ohio, exclusively.*

**THE DUAL PARKING METER COMPANY**

***A subsidiary of The Union Metal Manufacturing Company***

**MILFORD BUILDING • CANTON 2, OHIO**

**WHEN IT COMES TO CONTROLLING PARKING YOU CAN DO IT BETTER WITH DUALS**

# CROUSE-HINDS NEW

## Elevated Runway and Taxi Light

**is built to meet Specification L-802 of the Civil Aeronautics Administration**

Crouse-Hinds Type ERL Elevated Runway and Taxi Light with Transformer Housing

### Variable Height

The height of the unit can be varied up to 30 inches overall to meet local snow conditions.

### Light Distribution

Asymmetric or symmetric.

### Breakable Insert

The mounting column includes a breakable insert at the bottom which will withstand all normal wind pressures but will break readily upon impact, thus completely removing the obstruction.

### Disconnecting Plug and Receptacle

The mounting column contains a disconnecting plug and receptacle.

### Series and Multiple Circuits

Type ERL elevated runway lights can be furnished for operation on either series or multiple circuits using 30-watt 6.6 ampere series lamp or 40-watt 115-volt multiple lamp.

### Mountings

The standard mounting column can be furnished with a cover to fit existing contact light housings either shallow base AN-2513 or deep base AN2509. In addition a simple anchor type base is available for new installations with multiple circuits or series circuit. With this type series installation a direct earth burial type isolating transformer is used.

### Installation

These units are recommended for lighting runways or landing strips on all sizes and classes of airports. On paved runways install the lights at least ten feet outside the edge of the pavement. Where contact lights are already installed at edge of pavement, Type ERL runway lights can be installed using existing wiring and base housings.

### Taxi Lights

Type ERL units make ideal taxi-way marking lights. Can be furnished with blue globe in either symmetric or asymmetric type for this purpose.

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# Foreseeing Snow Saves Money

**Long-range weather estimates enable Public Works Departments to schedule their work in advance.**

By WALTER UNTERMEYER, JR.
*Weather Advisors, Inc.*
*Logan International Airport*
*East Boston 28, Mass.*

A WINTER weather service provided by a firm of industrial meteorologists, Weather Advisors Inc., has greatly aided municipalities throughout Massachusetts with their snow and ice removal problems. The many cities and towns subscribing to this service are contacted whenever the occasion demands so that they are always aware of the latest developments in transient storms which so frequently strike at New England and tie up traffic.

### Initial Warning

Whenever the weather picture presents a likelihood of storm, Weather Advisors issues an initial warning. As the storm develops, the initial information is followed by more detailed forecasts. Further "advisories" are issued throughout the storm in the event of a change of forecast. The street superintendent is, in this way, kept informed of all the latest weather information which pertains to his job—keeping his streets in the best possible condition throughout the winter.

There are many ways that the superintendent of streets can utilize weather information in scheduling the operations of his own department. If it is a question of starting a piece of construction work, the Public Works Department would be advised to wait for a protracted spell of good weather. By use of upper air data, the weather specialist can make long range weather estimates (by scientific methods, up to five to seven days in advance) for selection of favorable times for planning work as well as repair of equipment. There is no purpose in having men stand by over a holiday, a week-end, or a Saturday night, if there is no chance that they will be needed. On the other hand, the superintendent of streets is in a bad way if a sudden storm develops around three o'clock Sunday morning only to find some of his men are not within easy reach.

Most street departments in larger communities maintain a twenty four-hour watch, but this can prove to be a hardship on the men and an unnecessary expense. A weather service can save dollars as well as headaches.

In response to an invitation by the Massachusetts Highway Association, Parker N. Chick, formerly of the teaching staff of M.I.T., and now head meteorologist, presented a paper at the fall meeting of the Massachusetts State College at Amherst. He explained what meteorological methods might offer municipalities towards a more satisfactory solution of their winter weather problems. After the talk, Weather Advisors' representatives conferred with Highway Superintendents from communities of various sizes and types in order to obtain a comprehensive picture of the general weather requirements. A service was then set up along the lines desired. The costs of such service were estimated and with the aid of a research specialist of the Harvard Business School, a fair pricing schedule was evolved. The price was calculated more on the basis of a co-operative than a fee arrangement, necessiting a certain minimum support to cover costs.

### Main Objection

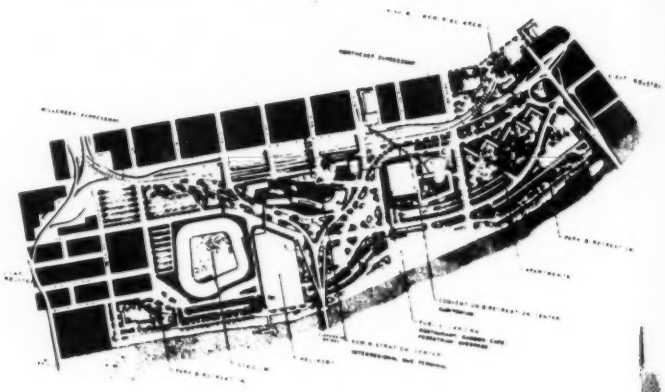
The main objection, of course, was why pay for a weather service when the government offers it free through the medium of newspaper and radio, and this was supplemented by a long-founded skepticism about meteorology in general.

The primary function of the U. S. Weather Bureau is to collect and disseminate weather information and forecasts for the broad interests of the general public. It is, according to F. W. Reichelderfer, Chief of the U. S. Weather Bureau, "the job of private meteorologists to assist in satisfying the needs of business and industry." Relative to industrial forecasts, the Chief adds, "Of course there is a limit to the individual attention that the Weather Bureau as a government service can give to any one person or private corporation. In some cities, we have certain services for quasi-public corporations on an industry wide basis but these are in general terms applicable to the industry as a whole and cannot usually deal with the special problems of individual business concerns."

There is only one forecast center to cover all of New England. Such a center is adequately manned for the ordinary run of weather. Obviously, it is not feasible to staff a Weather Bureau office with sufficient personnel to take care of everyone's needs during stormy weather when the incessant ring of telephones keeps the forecaster constantly on the jump. Experience at a New York broadcasting company which had a direct wire to the Weather Bureau proved that once the Weather Bureau forecaster issued a forecast, that was that. He had no time for revisals. The Weather Bureau's forecast is, of necessity, a general one. An area forecast cannot include the many geographical variations of temperature and precipitation, but these local variations may be vital to you. For example, what do you care if—say Boston—is going to have snow followed by rain, if your community perhaps only twenty miles away is going to get a deluge of snow. A study of surrounding terrain can transform a vague general area forecast into a specific forecast for your location.

### Maximum Utility

When a town spends thousands of dollars for snow removal, there should be no valid objection to paying a comparatively small amount in order to get the maximum utility from men and equipment. The value of a weather service is not obvious. If an airline puts a group of men at some overseas outpost to man a weather station, the men are not going to be worth their keep most of the time. If, however, only once during the course of a year they can furnish information that will save a plane, the men are worth ten times their combined salaries. A community in the snow belt can handle the majority of storms without a weather service, but it's the one time when you get caught short that a weather service can pay for itself many times over.



# Cheat *death* when you plan

The great City Planners and Traffic Engineers of *today* are the *life savers* of tomorrow.

They are choosing the PRISMO LIFE LINE, because to them it means:

•

*The most in visibility*
*The most in durability*
*The most in economy*

•

PRISMO LIFELINE is the *modern* reflective material for highway, road and street markings. Prismo is standard in many states, cities and counties for all danger points, including no-passing zones, fog-lining and municipal marking. PRISMO—*guides by day . . . protects by night.*

# Look for this label when you plan*

*Write for Bulletin 461 (Prismo Life Line) and for Bulletin 547 (Prismo Sign Kit).

# Parking Meters Buy Parking Lots

SOLVING traffic problems by the use of parking meters and the establishment of off-street parking facilities is a fairly old custom in Montclair, N. J. A tentative proposal for parking lots or plazas was incorporated in Montclair's Master Plan which was adopted in 1932. In 1937, the first parking meters were installed on Bloomfield Avenue in the main business area. Although the primary purpose of the meters was to help enforce parking regulations, generally it was understood that the revenue would offset the cost of parking lots. By the time the war came, three parking sites had been purchased, and two lots accommodating 208 cars had been completed. Construction work was resumed shortly after the end of the war, and today we have municipally owned off-street parking for 470 cars.

In 1946, the Bureau of Engineering made a thorough study of the parking problem in the main business area and recommended the installation of meters in parking lots as well as additional street meters. The introduction of that report gives a fairly clear picture of how we in Montclair see the problem.

Although expenditures for purchase, improvement, and maintenance of lots and meters have, to date, been fully offset by meter receipts, the cost of a full-scale program will rapidly exceed any pay-as-you-go plan based on present rate of income; therefore, it seems advisable to consider very fully a sound financial basis for the program.

As the laws of this State do not permit the levying of assessments for parking lots, the charging of a nominal fee for the parking appears to be the fairest method of producing revenue, and, at the same time, regulating the use of the lots so that they are not unduly monopolized by a small group of users.

### Traffic Survey

Surveys which have been made in congested city areas show that about one-third of the traffic is cruising in search of parking space. Montclair, too, has this condition, and if it is to be corrected, all-day parkers must be discouraged from occupying the areas close to shopping districts.

We are notably a commuting town, and a substantial group of citizens use cars to get to railroad and bus stations. Parking areas at stations should also be paid for by those who use them, and this principle becomes a *must* as applied to out-of-town commuters who otherwise get free parking at the expense of the Montclair taxpayers.

The report recommends bringing the number of parking spaces up to 1,450 spaces for all-day parkers and 1,650 spaces for shoppers, which will be sufficient to accommodate 50% more cars than the number now being parked in the all-day areas, and 100% more than the present number used by shoppers.

### Amount Charged

The rates recommended are 5 cents for one-half hour in the two most congested blocks on Bloomfield Avenue, and 5 cents per hour for the balance of that street; 1 cent for 12 minutes or 5 cent per hour on side streets and 10 cents for three hours in shoppers' parking lots. In the case of all-day lots, license plate tags will be sold at $10.00 per year for Montclair citizens, business men, or their employes, and $20.00 per year for out-of-town parkers.

The total cost of the project will be carried by meter receipts, estimated at $54,000 annually. Financing requires the use of all meter revenue up to and including 1952. A surplus of over $8,000 is foreseen for 1953. This surplus will increase rapidly as the five-and-ten-year bonds mature and, although maintenance costs may increase slightly as lots and meters age, most of it can be used to reduce taxes.

By Timothy Fleming
*Chief of Police*
*Montclair, N. J.*

## *A Source of Revenue Plus Parking Space*

FROM the very beginning of parking meters, The American City insisted that their primary purpose was and is to relieve congestion at the curb, rather than to make money for the city. However, their ten years' history has embraced a world-shaking decade that has left most cities searching for new sources of revenue. Parking meters are such a source. How much more they do than pay their way is shown by typical figures sent us by L. F. Theiling, city clerk and treasurer of Orangeburg, S. C.

Orangeburg's 356 Mi-Co meters cost $17.183 and collected $27.476 in 1946. That's $528 a week, or 24¾ cents per day per meter. Mr. Theiling estimates that the cost of collection, maintenance, and enforcement is $200 a month, or $2,400 a year. Thus the meters collect ten times their operating cost. This is quite a municipal industry for a town of ten thousand; and best of all, the meters do their job of providing parking space. The more they earn, of course, the better the job, for every nickel equals a parked car.

## Trenton Street Names Visible at Night

**Both Mayor Donal J. Connolly and the people of Trenton, N. J., are pleased with the modern street signs manufactured by The Traffic and Street Sign Company, Newark, N. J.**

AS the capital of New Jersey, Trenton has many visitors and new residents who are not too familiar with the streets, especially at night. For some years, the Department of Public Works wanted to replace the obsolete and never impressive street-name signs with modern ones. This means attractive units with legends easily read by night as well as by day.

When the end of the war made the project possible again, City Engineer Joseph E. English found such a sign. It consisted of an almost indestructible plate locked in an aluminum frame and mounted on a pole nine feet high. Moreover, each new reflectorized sign maintains its standard daytime shape and color at night. This was the feature that convinced City Commissioner Donal J. Connolly, Director of the Department of Public Works (now Mayor of Trenton) that this was the right sign.

Hardly had the sixty-six street signs of the first purchase order been installed before other sections of the city were asking for similar installations. Several more have been made, as well as plans for complete replacement of the old wooden signs now found on the city's telegraph poles and house corners.

# First assistant to the sun

WHEN the sun gives way to dusk, unsafe shadows spread over city highways and byways. It is then that the sun's first assistant—the faithful street light—goes on duty to protect lives and property . . . safeguard pedestrians and traffic.

*Proved* improvements have marked every step in the development of Union Metal street lighting standards. Since the earliest days of traffic safety lighting in this country, Union Metal has pioneered in making street lighting standards more serviceable, more economical, more durable, more attractive.

You can see them in hundreds of cities and towns—one is pictured on this page. Plans for improved street lighting should include Union Metal's modern *steel* lighting standards. You'll find them a profitable investment from every standpoint—safety, appearance, and economy. The Union Metal Manufacturing Company, Canton 5, Ohio.

*We regret the present extended delivery schedules due to the steel shortage, but this will improve and you will find Union Metal lighting standards well worth waiting for.*

## UNION METAL

*Largest Producers of Street Lighting Standards*

# New York City's Ten-Year Plan

**$2,000,000 a year for equipment to light its hundreds of "villages, towns, and cities."**

By NICHOLAS J. KELLY
*Chief Engineer of Light & Power Department of Water Supply, Gas, and Electricity*

NEW YORK CITY will spend $2,000,000 a year for ten years to bring its street lighting to the modern levels of intensity, safety, and appearance. In addition to this regular budget appropriation, Mayor William O'Dwyer has made available an additional fund of $200,000 to improve the lighting throughout the city.

In providing street lighting for a city covering 321 square miles, consideration must be given to all the communities and neighborhoods that compose the city. If we started work at North River and New York Bay and proceeded eastward, years would pass before we reached Flushing, Bayside, Jamaica in Queens, and Greenpoint, Carnarsie, and Coney Island. Meanwhile, part of the city would be enjoying the advantages of fine street lighting, while dozens of other communities within the city limits would be waiting impatiently for the tide of light to reach them.

To New York's millions of visitors, who rarely get beyond Manhattan, the neighborhoods may seem to be within the vicinities of our famous hotels—each the nucleus of a region composed of night clubs, theaters, department stores, specialty shops, churches, and bus, railroad, and air terminals. Each of these fine hostelries seems to its guests the center of Gotham's gay activities. They all add up to the midtown section of the Borough of Manhattan. Here the street lighting, in addition to the advertising displays, provides 400,000 to 1,200,000 lumens per mile on Fifth and Park Avenues, Sixth Avenue, Broadway, and all important thoroughfares.

There are twenty-four major districts in Manhattan, seventeen of them above 50,000 population. They include such familiar names as Chelsea, Greenwich Village, Yorkville, and Harlem. These four one-time scattered villages now have a combined population of 362,000. They and the other twenty districts are woven into a city of about 2,000,000, and still it's only the one Borough of Manhattan.

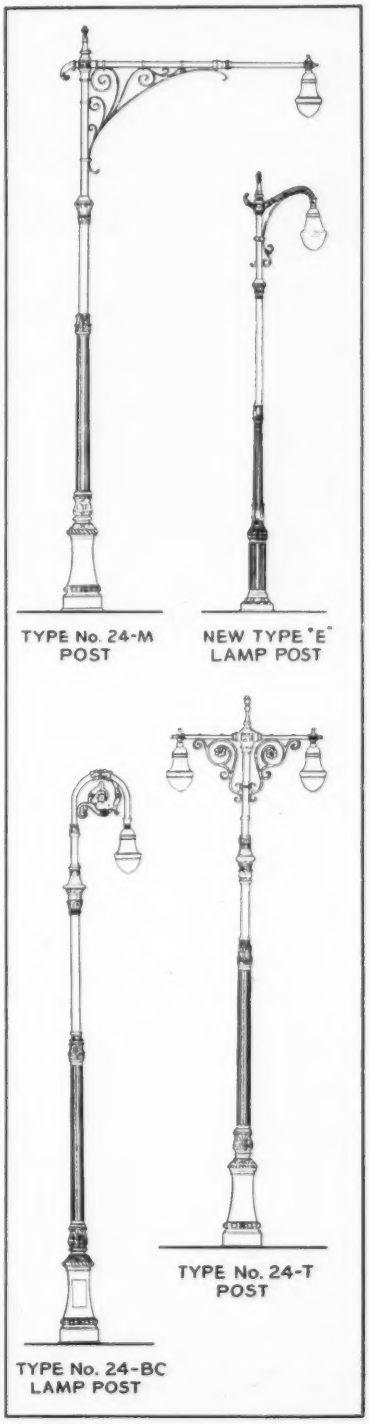
North of Harlem is the Bronx, a city of a million and a half. Across the East River is the Borough of Queens with 1,456,000 people. East of the financial district is the Borough of Brooklyn with a 2,700,000 population, and south are the 175,000 of the Borough of Richmond. Each of these boroughs has innumerable communities and neighborhoods, twenty-four of them each as large as a city of 100,000.

Bronx has twenty communities or districts, and Brooklyn has twenty-seven, including Brownsville of 202,000 population, Williamsburg 180,000, Flatbush 151,000, Bushwick 140,000. Queens is a borough of thirty-four communities including Astoria, 127,000 population, and Long Island City, Corona, Flushing, Jamaica, each exceeding 50,000. Brighton, Stapleton, and Port Richmond are three of Richmond Borough's nine communities.

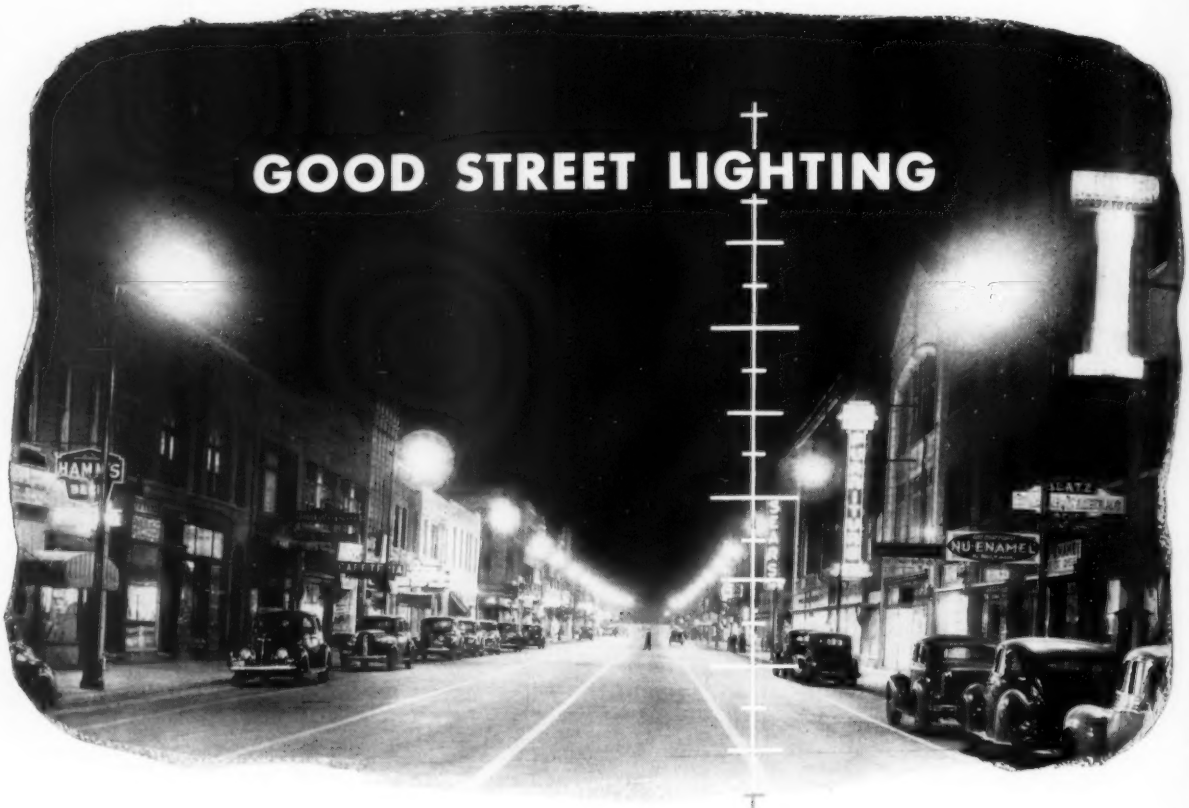
New York is not just a big city. It is made up of a one hundred or more social communities with 5,500 miles of streets, parkways, and park paths, illuminated by 158,000 lighting units.

Like other civilian services, ours suffered during the war, not only from the absence of any improvements but also because, as the largest coast city, it was necessary for military safety to curtail New York's outdoor lighting drastically.

Now we are picking up where we were forced to leave off, and will push street lighting improvements as fast as material deliveries will permit. Contracts have been placed for $1,100,000 worth of equipment. The Foran Foundry & Manufacturing Co., Flemington, N. J., will furnish 5,200 lamp-posts complete. Arms and brackets will be furnished by the Vulcan Steel Products Co., Brooklyn, N. Y.; wooden parkway posts will come from The Ryther-Purdy Lumber Co., City Island, N. Y. The lumi-




**Right: The various types of lighting fixtures used for New York City streets.**



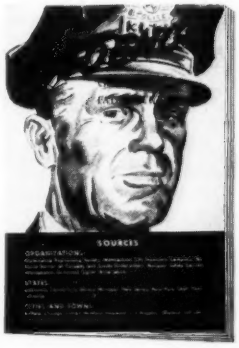

# *A civic benefit you can measure*

## . . . in increased civic pride

WHEREVER *adequate traffic safety lighting* replaces *obsolete* lighting . . . one of the almost immediate results is an increase in civic pride.

In Horton, Kansas, for example, citizens staged a parade "welcoming" their new street lighting. Spokane, Wash., held a "ribbon-cutting" ceremony opening a re-lighted street. In Dallas, new lighting won such wide acclaim that it was adopted as a pattern for future improvements. Kansas City's new street lighting was publicly praised as a "preview of a beautifully lighted city".

So it goes—wherever modern street lighting is installed, both citizens and public officials take greater pride in their communities. And—they gain *extra* benefits, in accidents averted . . . in lower accident costs . . . in reduced crime. Cities and towns everywhere find that *good* street lighting pays *many* dividends.




*You can get helpful information and ideas on how to promote traffic safety in your community by contacting your local electric utility—and from the new, useful case history booklet "Evidence", published by The Street & Traffic Safety Lighting Bureau, 155 E. 44th Street, New York City.*

**GOOD STREET LIGHTING**

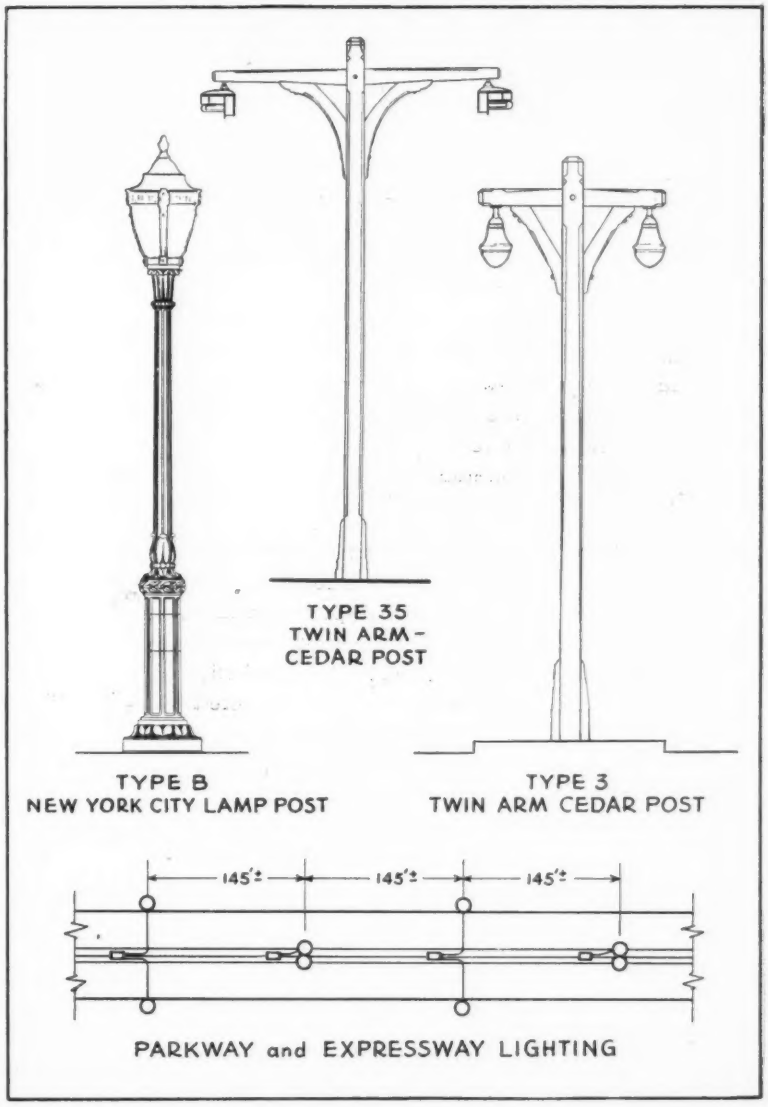
THE SIGN OF A GOOD PLACE TO *LIVE*

**Above: Parkway, park, and bridge lighting units used in New York City. Right: Other types of lighting fixtures.**

naires will be supplied by The Broadway Maintenance Co., Queens, N. Y., and the General Electric Company will furnish reflectors and the astronomical time switches for turning the lights on and off, according to schedule. Deliveries are under way. Other contracts are being prepared for early letting covering $600,000 worth of similar equipment. Installation will begin about July 1, under a $300,000 construction-contract now under preparation.

The department has on files requests for 25,000 new or improved lighting units, throughout its five boroughs, accumulated through the five years of marking time. All these will be taken care of when possible. Included in the general plan are replacement of 16,000 lamp-posts and brackets, as well as the lighting of 50 miles of new streets. In the next two years, 60,000 larger sized lamps will replace smaller lamps on more than 2,000 miles of streets, increasing illumination by at least 60 per cent. The plan is to make the 2,500-lumen lamp the smallest size used.

Lighting in many of the old sections of the city will be revamped. As an example, one project calls for the revamping of lighting on seventy-five miles of streets, involving more than 3,000 lighting units. The spacing will be reduced from the present 150 to 200 feet to 130 feet in staggered formation with diagonal corner-lighting at street intersections (see diagram). Replacements are made with city owned equipment, thus eliminating utility ownership. This policy started in 1936, and eventually the entire street lighting system will be owned by the city.



CINCINNATI'S transit rehabilitation program includes 105 NEW

# TROLLEY COACHES

Included in the Cincinnati Street Railway Company's broad transit expansion and rehabilitation program is the changeover of four of its rail lines to trolley coach service. Orders for 105 new, modern trolley coaches have already been placed. They will be used to replace street cars on the lines earmarked for conversion.

Trolley coaches are no strangers to Cincinnati riders. From the time the Clark Street line was converted to this modern service in 1936, they have been popular in this city. The railway now operates 34 coaches over two routes which total 20.2 round trip miles. When the changeover is completed Cincinnatians will enjoy the speed, comfort and convenience of 139 coaches furnishing service over 74.3 round trip miles of route.

There are five good reasons why trolley coaches are being included in the Cincinnati Street Railway Company's broad rehabilitation program:

1 The management has had 11 years' successful experience with them.

2 They are economical to operate and require very little maintenance.

3 They are good hill climbers and several of the routes to be converted are extremely hilly.

4 They are maneuvered easily in traffic and offer the maximum in safety, speed and comfort.

5 THE PUBLIC LIKES THEM

TROLLEY COACH AND STREET CAR
Ohio Brass
LINE MATERIAL AND CAR EQUIPMENT
MANSFIELD, OHIO
CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONTARIO

**New York City's Principal Communities and Districts**

| *Population Class* | *Number* |
|---|---|
| 100,000—300,000 | 26 |
| 50,000—100,000 | 33 |
| 25,000— 50,000 | 22 |
| 10,000— 25,000 | 18 |
| 5,000— 10,000 | 12 |
| Under 5,000 | 2 |
| Total | 113 |

Much revamping of light is to be done along the fifty miles of streets where the former El structures were taken down, such as Fulton Street and Fifth Avenue in Brooklyn, Second, Sixth, and Ninth Avenues in Manhattan. Already twenty-five miles of this improvement has been completed.

At 5,000 street intersections where one lamp now exists, diagonal lighting is scheduled. Included in the post-war capital projects are 35 miles of new parkways and expressways. This lighting will necessitate complete underground distribution facilities, including ducts, manholes, cables, control houses, and lighting units. The monies for this development will be provided from city and state funds.

Of New York's 5,500 miles of lighted streets and ways, there are 1,000 miles of overhead lighting on poles to be taken down and replaced by underground service.

Because Greater New York is a unit, the foregoing plans have been stated in mass terms. But this is not a mass project except in the purchasing. We buy in quantity, but we allot the materials to the requirements of the communities that make up New York. Our inspectors are constantly on the lookout for the right spots and sections to improve. Working closely with the police department, which sends us monthly statements of fatalities by the time of day or night (within our lighting schedule) when they occurred, we cooperate by accepting its recommendations for street lighting changes.

There is no doubt that the ratio of day fatalities to night is heavily weighted in the direction of night. In New York, the ratio for 1946 was 59.4% fatal at night, and 40.6% in the day. This leads to a suggestion to street lighting authorities of other cities. Keep your own accident statistics, and keep them accurately in accordance with your own lighting schedule. State-wide accident statistics merely record the time of accidents, or the low intensity of the lighting (as during a thunderstorm at noon) without regard to whether or not a local accident happened within the street lighting schedule. A variation or difference can be as high as 20 percent. What really counts is not the ratio of night to day accidents, nor special statistics, but the reduction of accidents and fatalities. For instance in a given month a city may have one hundred night and fifty-seven day-fatalities, a ratio of 63% night and 37% day. The next month's figures may be 90 fatalities at night and 40 during the daylight hours, a ratio of 69% night and 31% day. Is this worse than the previous month? There were actually ten fewer deaths.

The achievements of traffic safety lighting are now so well established that adequate lighting can be brought about nationally on the basis of the record. Real statistics prove its results. When the lighting of New York City, neighborhood by neighborhood, is improved, we can have greater ease of traffic flow, of pedestrians crossing the streets, and less likelihood of muggings, holdups, and annoyances at night.

All these factors entered into the guidance of our ten-year program for improving the street illumination of New York. This program was inaugurated by John W. Carrella, Commissioner of the Department of Water Supply, Gas, and Electricity.

## Lighting Standards Maintained

**Night view of Main Street, Poughkeepsie, N. Y., after installation in 1938.**

POUGHKEEPSIE has a lighting system which compares favorably with better lighted cities of its class throughout the country. Installation took place about 1938. In an endeavor to assure adequate lighting for each type of traffic classification, a survey map was made. Existing intensities on various "thru traffic" arteries in the city were studied on the basis of lumens per lineal foot. The luminating society standards for downtown streets in other cities range from 120- to 500-lumen feet. Poughkeepsie uses 200 lumens per foot on Main Street, from the river to Clinton Square. It is, therefore, far above the minimum.

The present lighting on Main Street is approximately a mile and a half long. It is the General Electric Form 32 Novalux Luminaire with a 10,000-lumen lamp mounted by means of an upsweep bracket on the old trolley poles. The only metal standards throughout the city are called the Poughkeepsie design and are manufactured and furnished by the Union Metal Company. The fixtures and the globes on the large ornamental poles through the city are the General Electric Company #107 Metal canopy, whereas on the shorter poles the General Electric #109 globes with metal canopy are used. Some Union metal poles #72 General Electric fixtures are also in use.

By keeping the lighting parallel with traffic growth the city of Poughkeepsie has accomplished a 15.03% reduction in traffic deaths since installation.



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# ACCURATE AUTOMATIC ADEQUATE . .

## ALL THE WAY from MOTORIST'S finger-tip to City Treasury . . .

Accurate, cumulative coin register shows dollars and cents

Adequate, full-week capacity coin box with coin-dumping feature assures economical, scheduled coin collection.

Automatic collection completed with one quick motion. (Conventional sealed boxes available if preferred)

**ONLY PARK-O-METER**

provides the economy and safety of automatic operation all the way from motorist's finger-tip to City Treasury. Tamper-proof coin register keeps accurate, cumulative record of amount deposited. The large capacity coin box permits coin collection on scheduled weekly basis and the automatic coin-dumping feature speeds collecting operation. In fact the Park-O-Meter System will save your city $5.00 per year, per meter, over the sealed box collection method.

**ASK FOR LITERATURE**

describing Park-O-Meter's *From-Motorist to-Treasury* System. It's new . . . modern.

*Magee-Hale*

**PARK-O-METER COMPANY**

Commerce Exchange Building

OKLAHOMA CITY 2, OKLAHOMA

# ZONING *and* PLANNING NOTES

*Edited by*
**NORMAN WILLIAMS, JR.**
*with the assistance of*
**FRANK B. WILLIAMS**
and
**EDWARD M. BASSETT**

## *Temporary Housing in Public Parks*

CALIFORNIA. *Griffith* v. *City of Los Angeles*, 178 Pacific (2d) 793 (California Second District Court of Appeal, March 27, 1947).

The plan for an admittedly temporary veterans' housing project, already begun in a section of a public park which had been unconditionally conveyed to the city, was attacked and an injunction was sought, on the grounds that the project would not be using the land for park purposes and that other land was available. In reply, the city urged that it could shift park land to any other public use, such as housing.

After reviewing the long-established practice of such temporary housing, especially during catastrophies, the Court held that emergency temporary use of park land for shelter of the homeless is a use for park purposes. The *Columbus* case in Ohio, 68 North Eastern (2d) 108, discussed in THE AMERICAN CITY in January 1947, and the *Hyland* case in Oregon, 173 Pacific (2d) 464, discussed in the February issue, were cited in this connection. While a recent California statute expressly authorized such a use of public parks, the Court preferred to base its decision on a general municipal power under the charter, as evidenced by long custom and acceptance.

## *Covenants Allowing "Residences Only"—Churches*

OKLAHOMA. *Christ's Methodist Church* v. *Macklanburg*, 177 Pacific (2d) 1008 (Oklahoma Supreme Court, March 4, 1947).

The land in Lincoln Terrace in Oklahoma City was (with a few exceptions) "restricted to residences only" by covenants. A church corporation bought land within this area, and sought a declaration of its rights to erect a church there—on the ground that churches were not expressly prohibited by the covenants, and that a public policy favoring churches (as schools, libraries, etc.) should override contract restrictions.

However, the covenants were construed literally to forbid all non-residential uses. As for the argument on public policy, the Court held that in acquiring property a church stood merely on the same ground as any citizen, while a school as a public body could resort to condemnation. The opinion cited a long list of cases in which the acquisition of property by churches was limited by similar restrictions.

## *Covenants Against "Any Business Purposes"—Apartments*

NEW JERSEY. *Wilson* v. *Ocean Terrace Garden Apartments, Inc.*, 51 Atlantic (2d) 549 (New Jersey Chancery Court, February 27, 1947).

A residential neighborhood development had been laid out in 1883 in Loch Arbour, N. J., with several types of restrictive covenants, including in particular one forbidding use for "any business purpose whatever other than hotel business where there are actual accommodations for at least 200 guests." When a 3-story garden apartment building for 59 families was planned to cover several lots in the development, other owners sought to enjoin the proposed construction on the ground that an apartment is a business. A hotel had formerly been on the lots in question, and an apartment house for six families had been built nearby within the development.

Since, when the covenants were drawn in 1883, modern apartments were unknown in the vicinity in question, the clause was held to be limited to business purposes as known then—retail stores, repair shops, manufacturing establishments, etc. The express provision in the clause to permit large hotels was held to constitute additional evidence that apartments would not be out of place in this type of development scheme. The Court referred to similar holdings from Illinois and Pennsylvania. In holding that covenants, drawn before the appearance of modern apartments and, therefore, not expressly referring to them, do not forbid modern apartments, this case resembles *Heller* v. *Seltzer*, 67 New York Supplement (2d) 456, discussed in THE AMERICAN CITY in April 1947.

## *Extension of Spot Zoning for Multiple Dwellings—Wilful Violations*

CALIFORNIA. *Wilkins* v. *City of San Bernardino*, 175 Pacific (2d) 542 (California Supreme Court, December 3, 1946).

In the midst of a large one-family residential zone, the only lots under different spot zoning regulations were on two successive corners along a Boulevard—one permitting business uses, and the second for multiple dwellings. The corner next to the business area, and opposite the multiple-dwelling spot zone, was involved in this case. When official sanction was refused three times for multiple dwellings there, the landowner submitted plans and obtained approval for a conforming one-family dwelling—and then proceeded to build two small multiple dwellings, each with one apartment and garages on the first floor and two apartments on the second floor. The owner then sought a declaratory judgment upholding his action, with an allegation that the ordinance as applied was unreasonable and invalid. The lower Court held for the plaintiff, partly on the ground that enforcement of the one-family zoning regulation would now cause hardship.

In a meandering opinion, the California Supreme Court reversed by a vote of 4-3. As recognized in the majority opinion, the plaintiff's attempt to enlarge the less-restricted island in the one-family zone amounted to a demand for an extension by judicial decree of the boundaries set by spot zoning. Yet, when spot zoning is used at all, the boundaries set by the legislature must be respected, to prevent a rapid breakdown of the regulations. Second, if hardship to a landowner after a "wilful violation" could be considered as grounds for an exception, anyone could obtain a variance by a flagrant enough disobedience of zoning regulations. The dissenting opinion emphasized the hardship before the violations, the effect of business uses on the adjoining property, and the limitations on legislative discretion.

## *Remodeling Non-Conforming Garages and Filling Stations*

NEW JERSEY. *Lane* v. *Bigelow*, 50 Atlantic (2d) 638 (New Jersey Court of Errors and Appeals, January 17, 1947).

A group of garage buildings on a corner on a Newark parkway consisted of a big public garage, a repair station and a store, and about thirty individual garages, apparently placed around an interior court with two filling pumps. All of these existed before zoning, and since as a non-conforming use in the third residential zone. The Newark zoning ordinance was explicit about changing such non-conforming uses:

> . . . no building or premises used in whole or in part as a public garage shall be altered or enlarged, nor shall the character of its occupancy or service be changed, except to a conforming use.

The owner sought permission to remodel the premises into a modern drive-in service station, with a larger entrance created by demolishing about one-third of the buildings along the parkway; and he won in the highest New Jersey Court.

The Court first pointed out that the proposed changes would not enlarge, but would actually decrease the existing structures. On the question of alterations or changes in service, two similar earlier New Jersey cases were then referred to, in which a change from a garage to a drive-in service station was held somehow not to involve either of these. Since the members of the State Legislature were presumed to have known this interpretation for ten years and had not taken steps to repudiate it, the Court (by a vote of 10-4) decided that the law stood settled as previously interpreted, and covered this case.



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# LEGAL NOTES and DECISIONS

*Prepared by*
NATIONAL INSTITUTE
*of*
MUNICIPAL LAW OFFICERS

CHARLES S. RHYNE
*General Counsel*

### Annexation—Agricultural Lands—Adaptability to City Use

In quo warranto proceedings attacking ordinance annexing agricultural land to city, held that where lands annexed are used only for agriculture or horticulture purposes and are not adaptable to city use, such annexation is abitrary and unreasonable. *State ex rel. Bibb v. City of Reno,* 178 Pa. (2d) 366 (Nev., Mar. 17, 1947).

### Bathhouses—Municipal Liability for Negligent Operation

In action for damages sustained from scalding water used in bathhouse facilities operated by municipality, held that plaintiff's action in turning on hot water faucet was not conclusively negligent. *Cohen* v. *Borough of Bradley Beach,* 50 Atl. (2d) 882 (N. J., Jan. 17, 1947).

### City Employes—Abolishment of Chief of Police Position by Resolution

In mandamus to compel reinstatement as chief of police of City of Anniston, held that resolution abolishing office of chief of police was void as office was established by ordinance and could only be repealed by adoption of ordinance. *Banks v. Peek,* 29 So. (2d) 418 (Ala., Feb. 13, 1947). *Reh. den.* Feb. 24, 1947.

### Civil Service—Eligible List—Failure to Fill Position From

Where vacancies in position of deputy inspector of weights and measures of City of Chicago had been filled by temporary employes, held that person who was on eligible list was entitled to mandamus to compel his appointment as deputy, notwithstanding others ahead of him on list had waived certification because of service in defense work. *People ex rel. Caslin* v. *Geary,* 71 N. E. (2d) 96 (Ill. App., Dec. 31, 1946).

### Commerce—Breaking of Original Package—State Taxes on Imports

Where imported lumber was sorted and stored according to size and subsequent sale of portion of lumber was made, held that remainder of lumber became taxable since the constitutional limitation against state taxes on imports applied only to original packages. *E. J. Stanton & Sons* v. *Los Angeles County,* 177 Pac. (2d) 804 (Cal. App., Feb. 20, 1947).

### Dogs—Running at Large—Conflict of Ordinance With Statute

In conviction for permitting vicious dog to run at large, held that ordinance of City of Boise was not in conflict with statute on subject of dogs running at large since ordinance made different classification than statute. *State* v. *White* 177 Pac. (2d) 472 (Idaho, Feb. 11, 1947).

### Fingerprinting and Photographing—Employes of Alcoholic Beverage Retail Sales Stores—Validity

Where ordinance required fingerprinting and photographing of persons seeking employment in establishments selling alcoholic beverages at retail for consumption on premises, held that such ordinance is not unreasonable although it exempted those serving drinks with food. *Norman* v. *City of Las Vegas,* 177 Pac. (2d) 442 (Nev., Feb. 7, 1947).

### Gambling—Validity of Seizure of Devices When Not in Actual Use

Where slot machines, at the time of seizure were not in actual use but were stored for shipment to point outside of state, held that such seizure was not illegal. *City of Chicago* v. *Sayer,* 70 N. E. (2d) 870 (Ill. App., Dec. 31, 1946). *Reh. den.* Jan. 14, 1947.

### Garbage—Collection and Disposal a Proprietary Function

In action for personal injuries caused by negligent operation of garbage truck, held that city, in collecting and disposing of garbage, was acting in proprietary capacity and hence was not exempt from liability for such negligence. *Gravender v. City of Chicago,* 71 N. E. (2d) 370 (Ill. App., Feb. 5, 1947).

### Juke Boxes—Statute Prohibiting Operation on Sundays Constitutional

Where statute prohibited operation of juke boxes or musical instruments on Sundays and after 11 P. M. on weekdays in places where non-intoxicating beer is sold, held that such statute is not unconstitutional as violating due process or equal protection clauses of constitution. *Morris* v. *Sevy,* 40 S. E. (2d) 874 (W. Va., Dec. 3, 1946).

### Labor Unions—Assignment of Dues of City Employes—Dayton Ordinance Void

In action testing validity of ordinance, held that city ordinance authorizing deduction from pay roll as requested by city employes of union dues is void as violating state statute prohibiting wage assignments between employers and employes except in case of labor unions, since municipal corporation is not an employer within such statute. *Hagerman* v. *City of Dayton,* 71 N. E. (2d) 264 (Ohio, Jan. 22, 1947).

### Municipal Organizations—Authority of City to Expend Public Funds to Join

In action to enjoin expenditure of public funds for payment of annual dues in municipal league, held that such expenditures are for a public purpose and are not against public policy. *Hays* v. *City of Kalamazoo (Michigan Municipal League, Intervenor),* 25 N. W. (2d) 787 (Mich., Jan. 6, 1947).

### Newspapers—License Tax Imposed on Upheld

In action to have ordinances of city imposing annual license tax on all retail sellers of newspapers, magazines and periodicals published within city and license tax on wholesalers declared void, held that such ordinances do not violate the freedom of the press. *Tampa Times Company* v. *City of Tampa* 29 So. (2d) 368 (Fla., Feb. 18, 1947). *Reh. den.* Mar. 24, 1947.

### Notice—City Officers—Validity When Given to Wrong Officer

Where statute provides for giving notice to designated municipal officer, held that notice given to another officer is invalid even if officer to whom notice should have been given knows it has been received. *Commissioner of Corporations and Taxation* v. *City of Malden,* 71 N. E. (2d) 601 (Mass., Feb. 13, 1947).

### Parks—Authority to Construct Highway Through

In action to enjoin city from constructing highway through city park, held that in absence of express statutory authority to do so, the city was unauthorized to construct such highway through park as distinguished from park roads. *Rayor* v. *City of Cheyenne,* 178 Pac. (2d) 115 (Wyd., Feb. 25, 1947).

### Sports Exhibition—Use of City Field—Licenses

In action to restrain city from issuing licenses to private organizations for sports exhibitions on city field, held that recreation commission of city could, in its discretion grant revocable permit for such purposes. *Goetz* v. *City of Mount Vernon,* 68 N. Y. S. (2d) 265 (N. Y. App. Div., Feb. 24, 1947).

### Subways—Damage to Buildings—City Liability

In action against city for damages caused by construction of subway, held that real cause for demolition of building was substitution of profitable for nonprofitable operation, and city was not liable. *Capitol Building Company* v. *City of Chicago,* 71 N. E. (2d) 371 (Ill. App., Feb. 5, 1947).

### Taxicabs—Power to Limit Number—Licensees and City in Contractual Relationship

In action to enjoin city from enforcing provisions of resolution, held that city had power to limit number of taxicabs to be authorized, that city could not revoke ordinances providing for licensing taxicabs during term licenses were in effect as contractual relation was created between city and licensees, and that city could not grant additional licenses to operate taxicabs without bringing new licenses under same regulations as other taxicabs. *Yellow Cab Co.* v. *City of Chicago,* 71 N. E. (2d) 652 (Ill., Jan. 22, 1947). *Reh. den.* Mar. 17, 1947.

### Workmen's Compensation—City Employe's Death Caused by Another Employe

In action for death, held that workmen's compensation law applied where city employe's death was caused by negligence of another city employe, although each employe served in different and distinct departments of the city. *DeGiuseppe* v. *City of New York,* 66 N. Y. S. (2d) 866 (N. Y. Sup. Ct., Kings Co., Nov. 25, 1946).

### Street Railways—Ordinances Prescribing Speed Limits

In action for damages, held that ordinance specifying speed limits of streets cars in congested district does not impliedly repeal later ordinance specifying different speed limit for street cars in business district.

*Petty* v. *Kansas City Public Service Co.,* 198 S. W. (2d) 684 (Mo., Dec. 9, 1946). *Reh. den.* Jan. 13, 1947.



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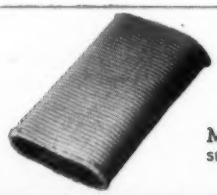

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# Recent City Manager Appointments

**The following portraits are of city managers whose appointments have been announced in preceding issues of The American City**

**Garland P. Franks**
**Sherman, Texas**

**Peter E. Jandreau**
**St. Francis, Me.**

**Byron J. Rockwood**
**Grand Forks, N. D.**

**Henry Rolfes, Jr.**
**Sylvan Lake, Mich.**

**Kent Mathewson**
**Asheboro, N. C.**

CLAUDE BERTRAM is town manager of Cavendish, Vt.

S. WALDO BURGESS, former state representative, has been appointed town manager of Limestone, Me.

KEITH R. CHINN has been appointed city manager of West Palm Beach, Fla.

DON W. COLLINS has been appointed first city manager of Colby, Kans.

R. C. HOPPE, manager of Sweetwater, Texas, since 1941, is the first manager of Midland, Texas.

J. WALTER HOPTON has succeeded Fred M. Boone as manager of Neosho, Mo.

WALTER F. JOHNSON, manager of Abilene, Kans., 1939-45; Atchison, Kans., since 1945, is the first manager of Emporia, Kans.

EDWARD W. LARSEN, city engineer, has been appointed city manager of Ludington, Mich.

CHARLES L. LINEBACK, manager of Nevada, Mo., has been appointed at Gainesville, Ga.

A. T. LUNDBERG has been appointed acting manager of Arlington County, Va. He succeeds Frank C. Hanrahan, manager since 1936, who has resigned to retire effective July 1.

JOSEPH K. MCGILLICUDDY has been appointed manager of Patten and Stacyville, Me.

LAWRENCE PINEL is now manager of Ludlow, Vt.

R. B. QUICK has replaced L. W. Sheckles as manager of Yoakum, Texas.

J. J. RAUCH, manager of Rock Hill, S. C., since 1939, has been appointed at Greenwood, S. C.

CHARLES A. ROSS is town manager of Blaine, Me.

HAROLD STOREY, formerly of the Colorado Municipal League, has been appointed city manager of Lynwood, Calif.

JACK A. TABER, city engineer, Bend, Ore., is manager of Milwaukie, Ore..

J. P. TACKETT is the first city manager of Sulphur Springs, Texas.

ROSS TAYLOR, manager of Yale, Okla., from 1924-27; Bartlesville, Okla., since 1927; has been appointed first manager at Enid, Okla.

RODERIC B. THOMAS, manager of Corpus Christi, has been appointed manager of Dallas, Texas, succeeding V. R. Smitham.

D. B. MCCABE, JR., formerly with FPHA of St. Joseph, Mo., has been appointed manager of Clarinda, Iowa.

CLARENCE E. RIDLEY
*Executive Director*
*International City Managers' Association*
*Chicago, Ill.*

## *Public Administration Study Aids*

ASSISTANTSHIPS and internships in public administration, with stipends ranging from $1,100 to $1,320 annually, are being made available by the School of Public Administration, University of Southern California, University Park, Los Angeles 7, Calif. Research fellowships and graduate and research assistantships in public administration will also be granted. Application blanks and bulletins are obtainable on request.

Meanwhile, Dr. Luther Gulick, President of the Institute of Public Administration, 684 Park Avenue, New York 21, N. Y., announces that participation in research projects of the Institute is open to qualified graduate students, for the period from October 1947, to June 1948. Several fellowships, ranging from free tuition of $450 to a maximum of $2,500 are available to outstanding applicants on the basis of need.

Persons accepted as Research Associates will take part in the Institute's current principal research project, a comprehensive survey of the development and enforcement of national forest policy in the United States, one phase of a wider program which will consider problems arising when federal and state governments endeavor to influence or control various parts of the national economy. Application forms and further information may be secured from the Director of Training.

# The Municipal Bond Market

Some sales of new issues reported in May issues of *The Bond Buyer*:

| Amount | Borrower and Purpose | Rate (%) | Term (Years) | Basis (%) |
|---|---|---|---|---|
| $ 71,000 | Poughkeepsie, N. Y., Public Improvement, Series A, of 1947 | 1.10 | 8 Avg. | 1.043 |
| 57,500 | Ossining, N. Y., Street, Sewer and Drainage, 1947 | 1.20 | 5 Avg. | 1.156 |
| 150,000 | Indiana, Pa., Borough | 1.25 | 1-15 Ser. | 1.183 |
| 150,000 | Atchison, Kans., Swimming Pool, Park and Street Imp. | 1.25 | 10.75 Avg. | 1.277 |
| 25,000 | Campbell, Ohio, Park Improvement | 1.50 | 5.50 Avg. | 1.45 |
| 160,000 | Marion, Iowa, Rural Ind. Sch. Dist. | 1.50 | 10.5 Avg | 1.44 |
| 85,000 | San Buenaventura, Calif., Playground of 1947 | 1.75 | 1-17 Ser. | 1.554 |
| 350,000 | Mitchell, S. D., Water Works | 1.75 | 11 Avg. | 1.687 |
| 14,000 | Ovid, Mich., Water Storage Tank | 1.75 | 4.83 Avg. | 1.531 |
| 98,000 | Terrebonne Par., La., Public Improvement | 2 | 3.5 Avg. | 1.83 |
| 28,000 | Cleveland, Miss., Water Works Improvement | 2 | 5.17 Avg. | 1.889 |
| 50,000 | Little Chute, Wis., Park Improvement and Municipal Garage | 2 | 1-20 Ser. | 1.813 |
| 140,000 | Wadena, Minn., Public Utility Revenue | 2.50 | 5/17 O.-A. Prem. | 2.30 |
| 90,000 | Niles, Calif., Sanitary Dist. | 3 | 1-18 Ser. | 2.983 |
| 49,000 | Fallbrook, Calif., Public Utility Dist. | 3.25 | 17.25 Avg. | 3.072 |
| 5,500 | Vanlue, Ohio, Municipal Building | 4.25 | 1-10 Ser. | 3.005 |



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# Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

**June 16-18—Traverse City, Mich.**
MICHIGAN ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Park Hotel). Exec. Sec., E. B. Wilson, Detroit-Leland Hotel, Detroit 26, Mich.

**June 18-20—Buffalo, N. Y.**
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Hotel Statler). Exec.-Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

MUNICIPAL ENGINEERS ASSOCIATION. In conjunction with New York State Conference of Mayors. Annual Meeting. Sec.-Treas., Raymond W. Murphy, 61 Old Post Road, Rye, N. Y.

**June 19—Newark, N. J.**
AMERICAN WATER WORKS ASSOCIATION. NEW JERSEY SECTION. Outing. Sec., C.. B. Tygert, Box 178, Newark 1, N. J.

***June 19-20—Lansing, Mich.**
AMERICAN PUBLIC WELFARE ASSOCIATION. Central States Regional Meeting. Dir., Howard L. Russell, 1313 E. 60th St., Chicago, Ill..

**June 20-21—Duluth, Min.**
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Annual meeting (Spalding Hotel). Sec., Paul W. Reed, 1098 W. Michigan St., Indianapolis 7, Ind.

**June 23-25—Cincinnati, Ohio**
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting. Exec. Sec. Charles F. Conlon, 1313 E. 60th St., Chicago, Ill.

**July 7-10—Toronto, Canada**
SMOKE PREVENTION ASSOCIATION OF AMERICA. Annual Meeting (Royal York Hotel). Sec., Frank A. Chambers, 139 N. Clark St., Chicago, Ill.

**July 7-11—Cincinnati, Ohio**
NATIONAL EDUCATION ASSOCIATION. Annual Meeting. Exec. Sec., Willard E. Givens, 1201 Sixteenth St., NW, Washington, D. C.

**July 6-12—Paris, France**
SEVENTH INTERNATIONAL CONGRESS OF LOCAL AUTHORITIES. Sec. General, M. Emile Vinck, 5 Rue de Regence, Brussels. American Sec., Earl D. Mallery, 1313 East 60th St., Chicago 37, Ill.

**July 8-11—Winnipeg, Canada**
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (Hotel Royal Alexandria). Exec. Director, Miss J. Allan, Mount Royal Hotel, Montreal, Quebec.

**July 21-23—Wilkes-Barre, Pa.**
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Meeting (Hotel Sterling). Sec., F. B. Titus, 80 Price Ave., Lansdowne, Pa.

**July 21-23—Salt Lake City, Utah**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (Hotel Newhouse). Sec.-Treas., George F. Simmons, Ogden, Utah.

**July 21-25—San Francisco, Calif.**
AMERICAN WATER WORKS ASSOCIATION AND THE FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Annual Conference. Sec., A.W.W.A., H. E. Jordan, 500 Fifth Ave., New York, N. Y. Sec., F.S.W.A., W. H. Wisely, 325-26 Illinois Bldg., Champaign, Ill.

**July 22-24—Elmira, N. Y.**
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Mark Twain Hotel). Exec.-Sec., R. W. Morris, Box 203, Capital Sta., Albany 1, N. Y.

**Aug. 18—New York, N. Y.**
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pennsylvania Hotel). Sec., Chas. E. Clark, Box 271, Wayne, Pa.

**Aug. 19-22—New York, N. Y.**
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pennsylvania Hotel). Exec.-Sec., Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

**Aug. 27-29—State College, Pa.**
PENNSYLVANIA WATER WORKS OPERATORS' ASSOCIATION. Annual Meeting. Sec., I. M. Glace, Harrisburg, Pa.

**Sept. 8-10—New York, N. Y.**
NATIONAL INSTITUTE OF GOVERNMENT PURCHASING. Annual Conference (Hotel Pennsylvania). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW, Washington 6, D. C.

***Sept. 11-12—Albany, N. Y.**
AMERICAN PUBLIC WELFARE ASSOCIATION. Northeastern Regional Meeting. Dir., Howard L.. Russell, 1313 E. 60th St., Chicago, Ill.

***Sept. 16-19—Boston, Mass**
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Statler Hotel). Sec. Joseph C. Knox, 609 Statler Bldg., Boston, Mass.

**Sept. 17-19—Atlanta, Ga.**
THE GEORGIA WATER AND SEWAGE ASSOCIATION. Annual meeting of Short School for Plant Operators (School of Technology). G. R. Frith, Department of Public Health, Atlanta, Ga.

**Sept. 19-20—Superior, Wis.**
WISCONSIN CHIEFS OF POLICE ASSOCIATION. Annual Convention (Hotel Androy). Exec. Sec. Walter H. Wagner, Sheboygan, Wis.

**Sept. 21-25—Duluth, Minn.**
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Duluth Hotel). Exec. Sec. Edward J. Kelly, 918 F. St., NW, Washington, D. C.

***Sept. 29-30—Little Rock, Ark.**
AMERICAN PUBLIC WELFARE ASSOCIATION. Southwestern Regional Meeting. Dir., Howard L. Russell, 1313 E. 60th St., Chicago, Ill.

**Sept. 29-Oct. 1—Los Angeles, Calif.**
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Meeting. Exec. Dir., Charles S. Rhyne, 730 Jackson Place, N. W., Washington, D. C.

***Oct. 1-2—Grand Rapids, Mich.**
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION, INC. Annual Meeting (Pantlind Hotel). Sec., Irvin Shulsinger, 8 E. 41st St., New York 17, N. Y.

***Oct. 1-4—Detroit, Mich.**
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Fort Shelby). Exec. Sec., Robert S. Holmes, 212 Strathcona Hall, Yale University, New Haven, Conn.

***Oct. 5-8—Jacksonville, Fla.**
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Meeting. Exec. Dir. D. F. Herrick, 1313 E. 60th St., Chicago, Ill.

***Oct. 5-9—Corondo, Calif.**
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Meeting. Exec. Sec., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

***Oct. 6-8—Niagara Falls, Ont.**
THE CANADIAN INSTITUTE ON SEWAGE AND SANITATION. Annual Meeting (General Brock Hotel). Exec. Sec., Dr. A. E. Berry, Parliament Bldg., Toronto, Ont.

***Oct. 6-10—Chicago, Ill.**
NATIONAL SAFETY COUNCIL. Annual Meeting (Stevens Hotel). General Sec., R. L. Forney, 20 North Wacker Drive, Chicago 6, Ill.

***Oct. 6-11—Atlantic City, N. J.**
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting. (Convention Hall). Exec. Sec., Reginald M. Atwater, 1790 Broadway, New York, N. Y.

***Oct. 8-10—Atlantic City, N. J.**
PENNSYLVANIA WATER WORKS ASSOCIATION. Annual Meeting (Haddon Hall). Asst. Sec., Mrs. Ethel M. Markley, 510 Telegraph Building, Harrisburg, Pa.

***Oct. 12-15—Colorado Springs, Colo.**
NATIONAL ASSOCIATION OF COMMERCIAL ORGANIZATION SECRETARIES. Annual Meeting (Antlers Hotel). Exec. Sec., Elizabeth Glenn, 1615 H Street, N. W., Washington 6, D. C.

**Oct. 13-17—New York, N. Y.**
NATIONAL RECREATION ASSOCIATION. Annual Meeting (Hotel New Yorker). Sec., Howard Braucher, 315 Fourth Ave., New York 10, N. Y.

**Oct. 16-17—Ocean View, Va**
VIRGINIA INDUSTRIAL WASTES AND SEWAGE WORKS ASSOCIATION. Annual Meeting (Nansemond Hotel). Sec., A. H. Passler, 815 East Franklin St., Richmond 19, Va.

***Oct. 27-28—Jefferson City, Mo.**
MISSOURI WATER AND SEWERAGE CONFERENCE. Annual Meeting (Governor Hotel). Sec-treas., Warren A. Kramer, State Office Bldg., Jefferson City, Mo.

***Nov. 12-14—Pittsburgh, Pa.**
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Meeting (William Penn Hotel). Chairman, H. M. Olson, 171 Longue Vue Drive, Pittsburgh, Pa.

***Nov. 17-20—New York, N. Y.**
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Meeting (Hotel New Yorker). Exec. Dir., Coleman Woodbury, 1313 E. 60th St. Chicago, Ill.

***Nov. 17-20—Dallas, Tex.**
CIVIL SERVICE ASSEMBLY OF THE UNITED STATES AND CANADA. Annual Meeting (Baker Hotel). Dir., James M. Mitchell, 1313 E. 60th St., Chicago 37, Ill.

***Nov. 19-21—Washington, D. C.**
AMERICAN WATER WORKS ASSOCIATION—Four States Section. Annual Meeting. Sec. Treas., W. A. Welch, 748 Public Ledger Bldg., Philadelphia, Pa.

***Nov. 20—Boston, Mass.**
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Statler Hotel). Sec. Joseph C. Knox, 609 Statler Bldg., Boston, Mass.

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## *Reapportionment—A Basic Reform Urgently Needed*

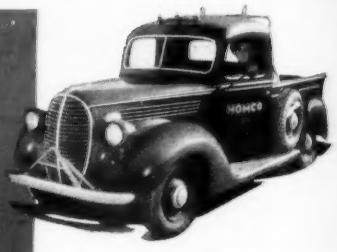
AN ARTICLE by the United States Conference of Mayors in the April 1 issue of its bi-weekly bulletin, *The United States Municipal News*, calls attention to legislative reapportionment as the most basic reform needed in American government, if representative government is to be a reality instead of a myth.

If, says the *News*, the cities had the representation in their state legislatures to which they are entitled, we would not have to worry so much about state-local relations. Cities would then have a voice in their own affairs and would solve most of the problems which hang on their necks because of the rural domination exercised in the legislative bodies of the states.

As has been said repeatedly, cities are legislative captives of their own states. Unless equitable representation is given to the people of the urban areas, we have little right to preach democracy to foreign governments.

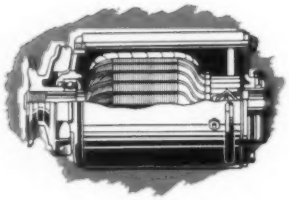
# "Certainly FORD TRUCKS LAST LONGER!"

"That's why we operate 207 of them!"—says C. R. Littlepage, Supt. of Transportation, Houston Oil Field Material Co., Houston, Texas.



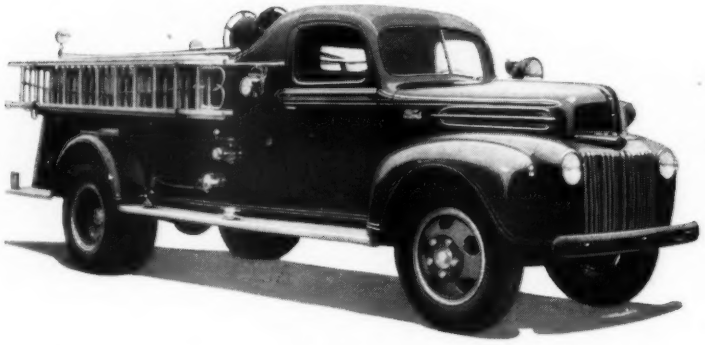
*Two 1939 Ford Trucks owned by HOMCO that prove the point: (Above) Driver Joe Zachary and Pickup, mileage 207,316; (Below) Driver H. O. Carpenter and Pickup, mileage 228,398. Supt. Littlepage adds: "Our Ford Trucks deliver trouble-free miles at minimum cost!"*

## One BIG Reason—
## FORD ELECTRICAL UNITS STAND UP!



The fame of Ford Trucks for swift, sure starting and all-weather reliability rests solidly on Ford design and Ford quality . . . in particular, the Ford Electrical System. More than 12 million Ford-designed starter motors and generators have been built in Ford shops. Repeated tests for electrical efficiency consistently prove these fine, Ford-built units to be outstanding. Long, trouble-free generator service is assured by such long-life features as pre-lubricated, sealed ball bearings on armature shafts, and by bushings wick-lubricated from a reservoir with an overflow drain, which prevents surplus oil from reaching commutator. Ford starter motors are pre-lubricated, requiring no oiling whatever. Ford wiring and generous battery and generator capacity adhere strictly to the highest standards of the industry. The simplicity and high efficiency of the Ford starting system circuit, too, have much to do with Ford's faithful starting performance.

Ford



*Rugged, easily maneuvered Ford heavy duty chassis are quick to start, ready to go, every time, anywhere! What an ideal combination of virtues for fire-fighting equipment! This unit is by Howe Fire Apparatus Co., Anderson, Indiana.*

THE 6 YOUR PICK OF POWER THE V-8

*Only Ford Brings You All These Long-Life Features:* Your choice of engines, V-8 or SIX —each with new Flightlight oil-saving 4-ring pistons and precision bearings · true truck frames in all models, with siderails *doubled* in heavy duty units · rear axle shafts free of weight-load, ¾-floating in half-ton units, full-floating in all others · big, easy-action brakes with non-warping, score-resistant cast drum surfaces—in all, *more than fifty* such endurance engineering features! And more than 100 body-chassis combinations to choose from. See your Ford Dealer now!

MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE!

# New Publications

# Municipal *and* Civic

## Airport Plan

AIRPORT PLAN. EIGHT COUNTIES OF WESTERN NEW YORK—*By Kenneth K. Koontz, Consulting Engineer. Niagara Frontier Planning Board, Buffalo, N. Y.* 1947. *Maps. Appendices.* 55 *pp.*

The report is a survey and analysis of the airport needs for Western New York, with a view to fitting the pattern into the state plan which in turn will fit into the program of the national airport plan. Federal, state, county, and town officials, as well as interested citizens and commercial airline operators cooperated in the comprehensive plan and recommendations of the report.

Its most important proposal is the creation of an airport authority for the eight-county section of western New York which would develop the plan and possibly assume control over the entire thirty-seven airports suggested for municipal ownership in the report.

## Family Needs and Public Housing

A STUDY OF LOW-RENT PUBLIC HOUSING, APPLICANTS AND RESIDENTS—*An Analysis of Their Characteristics. Housing Authority of the city of Newark, N. J.* 1946. *Mimeo.* 17 *pp.*

Using a sample of some 875 applications of families for low-rent housing which were later withdrawn by the applicant or the Housing Authority, this report compares information about the withdrawn applicants with the records of 107 families who had lived in the projects and then moved out. The report is important not so much for its findings as for the general information revealed about the characteristics and needs of the families interested in public housing.

## Building Codes

INFORMATION ON SOURCES OF MATERIAL FOR USE IN PREPARING AND REVISING LOCAL BUILDING CODES—*Compiled by the Building Code Correlating Committee of the American Standards Association in cooperation with the National Bureau of Standards. American Standards Association,* 70 *E. 45th St., New York* 17, *N. Y.* 1947. *Mimeo.* 32 *pp.*

This is a comprehensive listing of source material on building codes, including a selection of items available from responsible organizations. The extent to which the material should be incorporated in codes is a matter for the judgment of officials or committees undertaking state or local work.

## Zoning and Parking

ZONING APPLIED TO PARKING—*Charles S. LeCraw, Jr. and Wilbur S. Smith. The Eno Foundation for Highway Traffic Control, Inc., Saugatuck, Conn.* 1947. 47 *pp. Copies available free upon request.*

This is a valuable review of practice in this rapidly growing field which applies the theory of zoning for the required provision of parking facilities as an integral part of new construction. The booklet has chapters on the following subjects: practices in zoning for parking; physical requirements for facilities; zoning applied to existing buildings.

## Policemen's Salaries

SALARIES AND WORKING CONDITIONS OF POLICEMEN IN VARIOUS VIRGINIA POLICE DEPARTMENTS—*League of Virginia Municipalities,* 902 *Travelers Bldg., Richmond* 19, *Va.* 1947. *Mimeo.* 15 *pp.* 50 *cents. Distribution free to Virginia Officals.*

A comprehensive tabulation of the salaries of the Director of Public Safety, Chief, Captain, Lieutenant, Sergeant, Detectives, Patrolmen, office clerks, etc., in various Virginia municipalities. A report also is made on their working conditions.

## Taxation Discussions

NATIONAL TAX ASSOCIATION. PROCEEDINGS OF THIRTY-NINTH NATIONAL CONFERENCE ON TAXATION—*Edited by Ronald B. Welch. National Tax Association, Box* 1799, *Sacramento* 8, *Calif.* 1946. 527 *pp.* $3.75.

The proceedings include several sections of particular interest to municipalities. Among them are the following: Fiscal Problems of Municipalities, which contains discussions on state-local fiscal relations, problems of fringe communities in a metropolitan area, and new sources of revenue; Property Taxation, which discusses developments in property tax administration, assessment procedures, and alternative methods of taxing real property, and Fiscal Problems of Selected Cities, among them Minneapolis, Chicago, Toledo, and Detroit.

## Governmental Activities

AN INVENTORY OF GOVERNMENTAL ACTIVITIES IN THE UNITED STATES—*By Carl H. Chatters and Margorie Leonard Hoover. Municipal Finance Officers Association of the United States and Canada,* 1313 *East 60th St., Chicago, Ill. Mimeo.* 15 *pp.* 75 *cents.*

Governmental activities in the United States are numerous and interwoven, and this inventory helps to bring the subject into focus.

Just how many functions are performed by city, county, state, and federal governments, and what units carry out the various tasks are listed in a broad way in this inventory.

A composite pattern is presented of the major activities which does not apply to any individual jurisdiction.

## Mental Attitudes

DON'T BE A JERK: JERKS ARE A NOOSENSE—*By Hedi Seligsohn: Illustrations by Ben Blank. The League for Fair Play, Inc.,* 11 *West 42nd St., New York* 18, *N. Y.* 31 *pp.* 25 *cents.*

"Immunization against diseases of the mind is a *community* affair." This is the point brought out by this little book. In an exceedingly clever approach, the author handles with a light touch a weighty subject of serious implications. She points out the danger that threatens an entire community when even a few individuals are infected by the germ of unsocial, prejudicial ideologies—how one carrier can make the poison widespread. Miss Seligsohn demonstrates how our mental processes are conditioned to any kind of thinking, to suit the wishes of others, by the use of reflex techniques. We are told how we can withstand such harmful inroads into our minds by using our own brain and by basing our thinking on logic, reason, intelligence, and true facts. The writer presents a convincing case against prefabricated propaganda and makes an eloquent plea for mental health and right attitudes.

This publication makes extremely entertaining reading and is flavored by delightful cartoons.

G. P.

## Municipal Challenge to Congress

AMERICA CAN NOT AFFORD SLUMS—*The United States Conference of Mayors,* 730 *Jackson Place, Washington, D. C.* 1947. 23 *pp.* 50 *cents per copy to other than city officials.*

An extremely effective, well-designed presentation which urges the passage of the Taft-Ellender-Wagner general housing bill. The booklet points out that 6,000,000 slum dwellings need to be cleared and that private enterprise, unaided, can not do the job.

Cities cannot afford the continued development of slums and blighted areas and are ready to meet their share of the costs and go forward with slum clearance and public housing.

The text material is kept to a minimum, but the striking layout, photographs, and charts should bring home the urgency and importance of the message to congressional leaders.

## Goals for a Fuller Life

AMERICA'S NEEDS AND RESOURCES—*By J. Frederic Dewhurst & Associates. The Twentieth Century Fund,* 330 *West 42nd St., New York* 18, *N. Y.* 1947. 812 *pp.* $5.00.

This comprehensive survey, the result of three years of study and research by a staff of twenty experts under the direction of Dr. Dewhurst, measures past accomplishments and estimates future output and needs in virtually every part of our entire economic system. It is as if all the important publications of the now-defunct National Resources Planning Board had been condensed, brought up-to-date, and gathered together in one useful volume.

The book is both a fact-book of the American economic system, covering records of production, consumption, and economic change in the United States within recent decades, and an informed guide for the future, providing those who work and plan in each separate field, as well as those whose concern is the economy as a whole, with the bench-marks essential to intelligent planning and appraisal.

Well-written, concise chapters of special interest to municipal officials are those on urban redevelopment, housing, and government expenditures, although almost every phase of urban problems and living is touched upon.

The book's challenge to every citizen is to join the common cause of greater and more continuous production with a more fair and reasonable distribution of the benefits.

## New Hampshire City Management

THE MANAGEMENT PLAN AND NEW HAMPSHIRE TOWNS AND CITIES—*By Lashley G. Harvey. Mail Dept., University of New Hampshire, Durham, N. H.* 1947. 23 *pp.* 10 *cents.*

A contribution of the Bureau of Government Research of the University of New Hampshire, this booklet gives the background for the manager movement in New Hampshire and describes the state legislation permitting the adoption of the manager plan by municipalities.

## Safety Standards

AMERICAN SAFETY STANDARDS—*Published by the American Standards Association,* 70 *East 45th St., New York* 17, *N. Y. Illus.* 19 *pp.*

A list of approximately 200 standards covering safety and industrial health is contained in this catalogue. Not only are the standards listed but a brief description of their contents is given to make it easier for those interested, to locate standards concerning their own particular fields.

## G.R.A. Proceedings

PROCEEDINGS OF THE GOVERNMENTAL RESEARCH ASSOCIATION, THIRTY-SECOND ANNUAL CONFERENCE—*Governmental Research Association,* 30 *Rockefeller Plaza, New York* 20, *N. Y.* 1947. *Mimeo.* 91 *pp.* $2.00.

Included in this volume are several of the addresses delivered at the Association's annual conference last fall. Of special interest to municipal officials are the discussions on "New Tax Sources for Cities," "Organized Labor and Public Employment," and "The Role of the State in Federal-Local Relationships."



XUM

# An Appetite for Bigger BITES!

The new ML 4 Athey MobiLoader is designed for digging — a sturdily-built unit that gets bigger loads Its new heavy-duty digging bucket, fast, "Finger-Tip" hydraulic control, new better balanced "Caterpillar" Diesel Tractor mounting, all add up to bigger production and easier operation on your digging and loading jobs.

Athey MobiLoaders employ the time-saving overhead method of loading. They cut time by travelling in a straightline from digging to discharging. They eliminate turning, save tractor wear and reduce maintenance costs.

Only the quality-built Athey MobiLoader gives so many profitable advantages. It's the time-proved, modern answer to your tractor-loader operations.

Your Athey-"Caterpillar" Dealer will gladly tell you more about the money-saving Athey MobiLoader. See him today, or write direct to ATHEY PRODUCTS CORPORATION, 5631 West 65th Street, Chicago 38, Illinois.

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"Finger-Tip" Control
A NEW ATHEY Feature

*"Finger-Tip" Control — A convenient lever gives operator complete and accurate command over the movement of the heavy-duty bucket. Easier operation, bigger production.*

**Athey ML 4 MOBILOADER**

## Waterfront Planning

COMPREHENSIVE STUDY AND REPORT ON PROPOSED ALAMITOS BAY MARINA—*Prepared in the Dept. of Planning under direction of Werner Ruchti, Director. Room 209, City Hall, Long Beach 2, Calif. Mimeo, Illus. Charts. 78 pp.*

A rather complete report, which may be helpful to other municipalities, is presented here. Before the analysis was made, extensive research studies were made of other reports on Marinas and related subjects. As a result of intensive research, the report points out clearly why Alamitos Bay should be developed and gives an analysis of the benefits which will result from the improvement of the Bay.

## New Canadian Journal

METROPOLE—*Vol. 1, No. 1. April 1947. Metropole Publishing Co., Inc., 949 Cherrier St., Montreal, Quebec. Subscription rates* $3.00 *yearly.*

THE AMERICAN CITY welcomes the first issue of this well-edited little journal devoted to a monthly review of municipal progress on the island of Montreal. One of Metropole's main purposes is to publish and to exchange information and advice on municipal problems and services. The articles are printed in the language in which they are written, either English or French.

*Metropole* should be valuable in helping to develop an understanding of and finding solutions for common municipal problems in tre Montreal metropolitan area.

## Suggestions for Research

FEDERALISM AND INTERGOVERNMENTAL RELATIONS—*By William Anderson. Public Administration Service, 1313 E. 60th St., Chicago 37, Ill. 1946. 192 pp.* $2.00.

This "budget of suggestions for research" contains many searching comments and penetrating questions of the justifications for our present governmental concepts and procedures.

In his suggestions for further study, Mr. Anderson clearly shows the need for thorough, objective investigation of every important aspect of the relations between and among the national, state, and local governments.

## U. N. Headquarters

U. N. HEADQUARTERS, PRACTICAL APPLICATION OF A PHILOSOPHY OF THE DOMAIN OF BUILDING—*By Le Corbusier. Reinhold Publishing Corp., 330 W. 42nd St., New York 18, N. Y. 1947. 80 pp.* $3.50.

This book is an "on-the-spot" account of the seven-months' search for a suitable site for the U. N. Headquarters—a search carried on by an international group of experts. It is something of an historic document, discussing the events leading up to the decision.

The logic, philosophy, and language of the author are unusual and interesting, as are the pen and ink sketches with which it is illustrated. Even Le Corbusier, however, seems to have difficulty in defending the sanity of the events resulting in the selection of a 17 acre site within 36 hours, when sites up to 40 square miles (26,500 acres) had been considered, examined, and reported upon during the seven-months' period.

## Public Power Systems

ANNUAL SUMMARY OF OPERATIONS OF PUBLIC POWER SYSTEMS—*Published by American Public Power Association, 1129 Vermont Ave., N. W., Washington 5, D. C. 34 pp.* $2.00. *Free to APPA members and reporting utilities.*

This is the public power industry's first effort to publish annually a summary of certain operating and financial statistics. Public officials will find the information of direct value in their system operations, and they will be able to make comparisons between systems and suggest ways and means for improving weak spots. All the figures are recorded as reported by the particular utility.

## County Planning

SET-UP OF COUNTY PLANNING COMMISSIONS—*Municipal League of Seattle, Seattle, Wash. 1947. Mimeo. 7 pp.*

This report contains brief charts on the organization, procedures, and budgets of nine county planning commissions and eight West Coast city planning commissions.

## Atomic Bombs

THE PROBLEM OF REDUCING VULNERABILITY TO ATOMIC BOMBS—*by Ansley J. Coale. Princeton University Press, Princeton, N. J. 1947. 116 pp.* $2.00.

Our best defense against the atomic bomb in two extreme world situations is made the basis of the author's analysis. In the case of a completely satisfactory international agreement, it is still to each country's advantage to minimize its vulnerability by decentralizing its national administration, and reducing spot concentration of war potentials and military force. The author suggests, as secondary protection, governmental encouragement of gradual reduction in economic and population concentration in urban areas, and the construction of buildings strengthened against blast and heat. He also considers the possibilities of an atomic armament race in the case of unlimited production throughout the world, going into the technical and analytical problems both situations involve.

## Regional Planning

THE CASE FOR REGIONAL PLANNING, WITH SPECIAL REFERENCE TO NEW ENGLAND—*By the Directive Committee on Regional Planning, Yale University. Yale University Press, New Haven, Conn. 1947. 94 pp.* $10.00.

The principal purpose of this document is to emphasize the need for regional planning, both in New England and throughout the country, and to suggest the outlines of an administrative organization which will permit the pooling of all the powers and resources necessary to effective regional planning, without an overconcentration of power in the federal government or a dampening of local and private initiative. It is not an effort to offer a specific plan for New England but rather to suggest how New England, or any other region, can achieve and implement appropriate plans.

There are excellent chapters on the planning process and defining regional areas for planning. Some of the four-color maps and charts add a spectacular flavor to the text material, although their inclusion may be questioned by those interested in the production of lower-cost planning publications which would have a chance of wider distribution and sale throughout the country.

## Highway Control

PUBLIC CONTROL OF HIGHWAY ACCESS AND ROADSIDE DEVELOPMENT—*By David R. Levin, Public Roads Administration. U. S. Government Printing Office, Washington 25, D. C. 1947. 154 pp. 35 cents.*

This new edition of the pamphlet which originally appeared in 1943 contains the material and information which should be of value to municipal officials who wish to speed the flow of motor vehicle traffic.*

## Government Finance

FACTS AND FIGURES ON GOVERNMENT FINANCE—1946-1947. *The Tax Foundation, 30 Rockefeller Plaza, New York, N. Y. 144 pp.*

This is a new voulme in the series inaugurated by the Tax Foundation six years years ago, for the purpose of making available to the general reader current and historical data relating to the fiscal operations of government. This is an excellent opportunity for editors, writers, legislators, and citizens who are concerned with governmental costs and operations, to find out what public funds are spent for.

* See p. 7 of this issue for a discussion of the contents of this pamphlet.

## Planning Rental Housing

PLANNING RENTAL HOUSING PROJECTS—*Federal Housing Administration. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 1947. 56 pp.* 15 *cents.*

The booklet points out desirable principles to be observed in the planning of the building or buildings of a rental project and of its site. It includes suggested room and unit layouts and photographs and sketches which illustrate the planning concepts and requirements considered by F.H.A. before approval is given to rental housing mortgage insurance applications.

The foreword states: "Too much emphasis cannot be placed on planning, for the success of a project depends upon the satisfaction of the tenants with the accommodations provided. A good location will attract tenants, but badly planned living units will cause them to move to something better."

## Planning and Housing Reports

BALTIMORE, MD.—Report on The Light Street Waterfront Area. 1947. Commission on City Plan, 400 Municipal Bldg. Mimeo. 9 pp.

CAMBRIDGE, MASS.—Cambridge Fifty Years from Now. By Frederick J. Adams. Presented by the Cambridge Planning Board. 1947. 13 pp.

PROVO, UTAH—Planning in Utah County. 1946. First Annual Report. Utah County Planning Association, City and County Bldg. Mimeo. 11 pp.

SAN DIEGO, CALIF.—A Plan for La Jolla. 1946. A Report to San Diego City Planning Commission. Illus. 42 pp.

WINNIPEG, CANADA—Annual Report. Metropolitan Plan, Greater Winnipeg. 1947. Metropolitan Plan—Greater Winnipeg, 605 Time Bldg., Portage and Hargrave, Winnipeg, Manitoba. 24 pp.

—Preliminary Report on Transportation. Part of Metropolitan Plan for Greater Winnipeg. No. 3 of Master Plan Reports Prepared Jointly by Metropolitan Planning Committee, Winnipeg Town Planning Commission. 1946. Mimeo. Charts. 41 pp.

## Other Reports Received

ALLIANCE, NEBR.—Annual Report of the City Manager. 1946. 25th Anniversary of City Manager Government in Alliance. Tables. Illus. 33 pp.

BOONE, IOWA—Financial Report. 1946-1947. Tables. Mimeo. 24 pp.

CHICAGO, ILL.—Chicago's Report to the People. 1933-1946. Illus. 364 pp. $1.

CUMBERLAND, MD.—Improving the Government of Cumberland. A Report to the Mayor and Council of Cumberland. By Joseph M. Ray, Professor and Head of Dept. of Government and Politics. University of Maryland. 32 pp.

DARIEN, CONN.—Annual Town Report. 1946. Charts. 65 pp.

DETROIT, MICH.—Fortieth Annual Report of the Board of County Road Commissioners of Wayne County. 3800 Barlum Tower. Charts. Illus. 96 pp.

KANSAS, MO.—Your City Government. Annual Report. 1945-1946. Charts. Illus. 48 pp.

RICHMOND, VA.—License Taxes on Amusements in Virginia Municipalities. League of Virginia Municipalities, 902 Travelers Bldg. Mimeo. 14 pp. 50 cents. Distribution free to Virginia Officials.

SACRAMENTO, CALIF.—Proceedings Sixth Annual Conference of the Western Governmental Research Association. "Governmental Research and Reorganization for Peace." 1946 Mimeo. 39 pp.

SAN FRANCISCO, CALIF.—Annual Report of the Department of Public Works, City and County. 260 City Hall. 1946. Mimeo. Illus. Charts. 180 pp.

TEANECK, N. J.—The Proposed 1947 Budget. The Teaneck Township Council. Charts. Illus. 16 pp.

WASHINGTON, D. C.—Mortgagees' Handbook. A Section 203 Guide for F.H.A. Approved Mortgagees. 1946. Charts. Appendix. For sale by the Superintendent of Documents, U. S. Government Printing Office. $3.25.



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# Low Cost POWER and HEAT

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### Sewage-Gas-Fired U-4 Engine

Gas from fermenting sewage is the fuel for this INTERNATIONAL U-4 Engine and 5 KW generator set.

The electric power and heat developed operates a sewage disposal plant of 1,500,000 cu. ft. daily capacity for the City of Burlington, Wisconsin.

The engine has given more than 25,000 hours of service at one-third the cost of operating with purchased electric power. Depreciation of the engine as well as charges for standby electric service are included in the costs of operation.

International Power really pays for itself here! Ask the International Industrial Distributor near you to help select the International engines, power units, tractors and matched equipment for your community's use.

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**INTERNATIONAL HARVESTER COMPANY**
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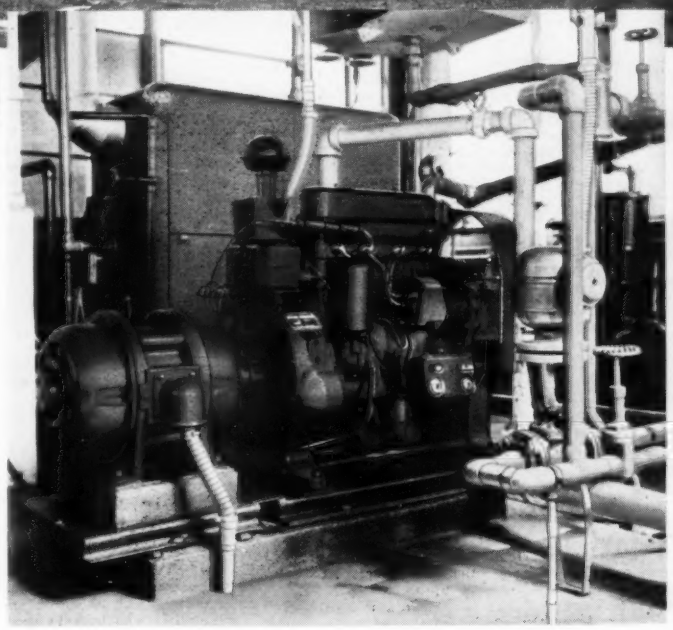


Exhaust gas of this International U-4 engine heats water for one of the processes of sewage treatment while its generator supplies power for sludge pumps and other power applications. The cooling system is connected to heat-exchangers for water heating and to heat the main building in winter. Hourly cost for all maintenance, depreciation, lubrication and electric standby service, based on hours used, is $0.0639.

INTERNATIONAL HARVESTER

# INTERNATIONAL POWER

**CRAWLER AND WHEEL TRACTORS • DIESEL ENGINES • POWER UNITS**

# News and Illustrations

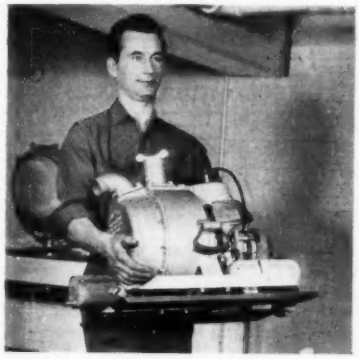
**Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings**

## "Carryable" Pump Reduces Operation Cost

A dominant feature of the Homelite pump is its "carryability"—one man can pick it up and carry it when and where it is needed. This eliminates many difficulties of transportation.

Fast and completely automatic self-priming keeps seepage water down at strainer level, providing dry footing for workmen in excavations or manholes. High suction lift of 28 feet permits pumping out deep pits or wells. Non-clogging, self-scouring design, with replaceable wear plates, enables it to handle mud and solids easily and safely. With discharge pressures up to 45 pounds and heads up to 100 feet, the pump is suitable for auxiliary fire protection or for water supply to concrete mixers, tank wagons, or fire engine booster tanks.

Homelite Carryable pumps are available in sizes of 1½, 2, and 3 inches with built-in gasoline-engine drive and capacities from 4,000 to 15,000 gallons



per hour. Also available are a mobile 4-inch pump of 30,000 gph capacity and electric-motor-driven 2-and 3-inch pumps.

Complete specifications may be obtained by writing to the Homelite Corp., Port Chester, N. Y.

## Catching Up on Business Machines

With unfilled orders now greater than the total income from sales for any two pre-war years, the Burroughs Adding Machine Company, Detroit 32, Mich., has enlarged its production, sales, and service facilities throughout the world. To meet this demand, the company has undertaken a changeover from making 582 special-purpose models to volume production of 95 general-purpose improved machines. Simple modifications by field service men can

adapt the reduced number of models to practically all uses formerly served by the 582.

A program of improving and enlarging the 558 sales and service centers in the United States and Canada, and its 215 branches and dealers' offices in other countries, was instituted last year. The company also has thirty-four operator schools where its customers may send employes to learn to operate Burroughs machines.

The sales and service departments produced record results in $78,000,000 of orders for business machines, service, and supplies last year. Orders for every class of machines—calculators, adding machines, bookkeeping machines, accounting machines, cash registers, and cash machines—exceeded previous totals.

No matter where the Burroughs customer may be, or how old his machine, Burroughs service is available and ready to make prompt repairs and regular inspections through factory-trained service men. Free service is given for an initial guaranty period, and each local office keeps permanent records of all machines in its territory.

Last October, the Board of Directors elevated John S. Coleman from Vice-president to President and Chief Executive Officer of the company, to succeed Alfred J. Doughty who resigned on advice of his physician. Laurence V. Britt, formerly executive Vice-president, became Chairman of the Board and Chairman of the new Executive Committee. John L. Stewart was elevated from Vice-president to Executive Vice-president and continues as treasurer. Engineering and marketing functions were placed under two Vice-presidents.

## Combination Dragline-Clamshell-Crane-Bulldozer Tractor

The Hyster Co., Portland 8, Ore., has designed a unit for installation on the D6 and D7 models of the Caterpillar track-type tractors that is a combination of dragline, clamshell, crane, and bulldozer.

An outstanding use of this combination of utility and production tool is in the laying of pipe lines. The Hystaway draglines the ditch, operates as a crane to lower the pipe, and then completes the operation by backfilling with the bucket or bulldozer, affecting a considerable saving of time.

The Hystaway is being used in many places where a shovel is not practicable; the removal of the Hystaway unit, in an hour, returns the Caterpillar tractor to its work of bulldozing or drawbar operation.

AIR PLUS JAEGER COMPRESSOR

## get air costs down to today's Jaeger figures

Your Jaeger distributor is today supply headquarters for contractors in your locality who are applying modern *low-cost* air power to their work. He handles the finest air tools, engines and compressors on the market — he knows air — he is an important link in a chain of 128 Jaeger air stations across the U. S. and Canada which give on-the-spot service to contractors wherever their jobs may be.

### Why Jaeger Air COSTS LESS

75% to 100% larger "Tough Swedish Twin" valves, ultra-lapped to leakproof closure — 20% to 30% slower, cooler piston speed — 100% efficient intercooling — force feed lubrication — balanced, precision parts — mean smoother, vibrationless performance, free air flow without the usual heat, carbon and power-wasting back pressure — more air from every pound and dollar of fuel and much lower upkeep with compressor units that outlast their original engines* 3-to1.

*Caterpillar, Continental, International power.

TOP QUALITY AT BEDROCK PRICES: Tripled factory output and latest high-speed production tools are keeping Jaeger prices far below cost levels of materials and labor.

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**WORTHINGTON-GAMON**

**LIQUID METERS**

All Sizes All Types

**Worthington-Gamon Meter Co.**

*Subsidiary*

WORTHINGTON PUMP & MACHINERY CORP.

296 South Street Newark 5, New Jersey

ANTHRAFILT

*(Reg. U.S. Pat. Off.)*

A Filter Medium For All Purposes

*Has outstanding advantages over sand and quartz media:*

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime, iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

*Additional information, recommendations and quotations furnished upon request by*

PALMER FILTER EQUIPMENT COMPANY

822 E. 8th St. Erie, Pa.

*Engineers and Sales Agents*

*REPRESENTING —*

ANTHRACITE EQUIPMENT CORP.

Anthracite Institute Bldg., Wilkes-Barre, Pa.

## For City Plants and Streets Allis-Chalmers 1847-1947

Fortunate is the municipal official in having at his command so many manufacturers of the machinery, devices, and materials that operate his water, sewage, and electric plants. Hundreds of these manufacturers make individual or a limited number of products. A few can supply a major portion of this equipment. Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., is one of the latter. Moreover, the company is one of the few manufacturing street and highway machinery as well as municipal plant equipment. It is appropriate that its hundred years of progress, and its present products, should now be outlined exclusively for municipalities in a twenty-page illustrated booklet entitled *Public Works Equipment.*

With the exception of boiler and fuel-handling equipment, A-C builds a complete line of power generation equipment, including hydro, gas, and steam turbines; condensers, air ejectors, generators, excitors, water conditioning equipment, and low- and high-pressure and boiler-feed centrifugal pumps.

In the field of power distribution and control the company builds switchgear, transformers, circuit breakers, unit substations, motor generators, mercury arc rectifiers, switchboards and controls, and all types of motors from one hp to 7,000 hp and up, and motor starters.

The range of general machinery includes sewage and sludge pumps, grinders, kilns, blowers, and screens for sewage plants. Water works equipment includes all sizes and types of centrifugal pumps and motors. Tractors, graders, crushers, screens, kilns, sifters and roller mills are among the products for street and highway construction.

The brochure tells of each type of equipment. Two sets of giant equipment are shown operating in Chicago. One is the pump which will make the Chicago filtration plant the largest in the world, with a capacity of 320 mgd. The other is the turbo blowers, each of 100,000 cubic feet per minute, that aerate Chicago's sewage in the world's largest treatment plant. Four 50-mgd raw water pumps and one 75-mgd are shown in the Milwaukee filtration plant. There also are two 20-mgd wash-water pumps. All are driven by Allis-Chalmers synchronous motors and controlled by A-C switchgear. Dependability is illustrated by the Brilliant Pumping Station in Pittsburgh, Pa., where six pumping units still are operating after sixteen years' experience.

## Lead Industries Association Elects Officers

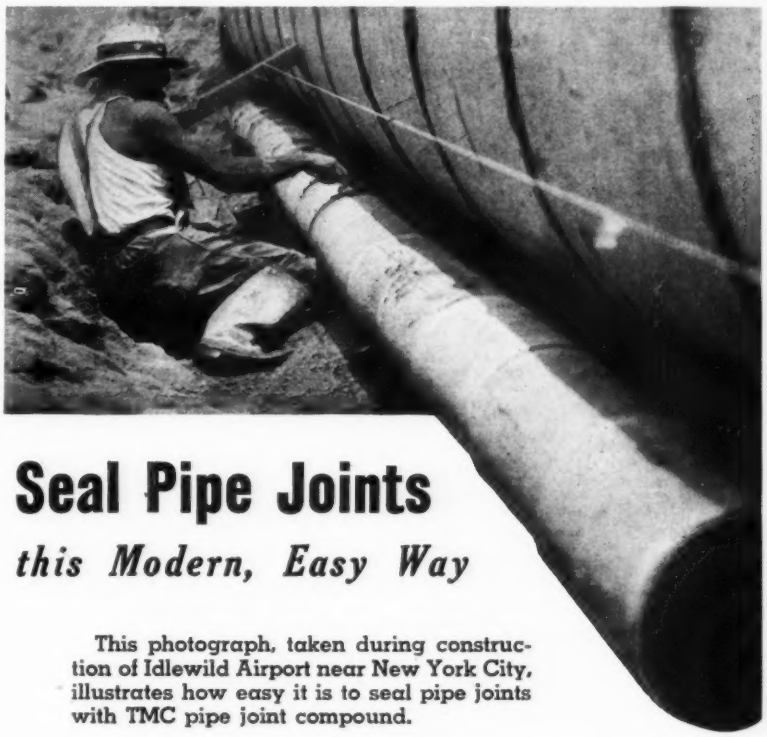
At the annual meeting of the Lead Industries Association, Robert Lindley Ziegfeld was elected Acting Secretary and Treasurer; K. C. Brownell, Vice-president and member of the executive committee and board of directors, and D. N. Burruss, Jr., was elected to the board of directors. All other officers and directors were reelected.

Mr. Brownell is Executive Vice-president of American Smelting and Refining Co., and Mr. Burruss is the General Manager of Metals Refining Co.

## DEMA Holds Session

The Diesel Engine Manufacturers Association, comprised of diesel-engine manufacturers in the United States, recently completed a session attended by advertising and public relations men who discussed trends and practices of advertising and public relations in the field.

Among the participating speakers were E. J. Schwanhausser, Vice-president of Worthington Pump and Machinery Corp. and President of DEMA; Allen P. Colby, Advertising Manager of The National Supply Co.; A. L. Davis, Advertising Manager of Worthington; Howard H. Cohenour, Manager of Advertising and Sales Promotion for The Buda Co.; Henry J. Barbour, Manager of Sales Promotion and Publicity for Fairbanks, Morse & Co.; J. W. Vance, Assistant Director of Public Relations for International Harvester Co., and Frank A. Uniack, Director of Public Relations for Cleveland Diesel Engine Division of General Motors Corp.

**Seal Pipe Joints**

***this Modern, Easy Way***

**This photograph, taken during construction of Idlewild Airport near New York City, illustrates how easy it is to seal pipe joints with TMC pipe joint compound.**

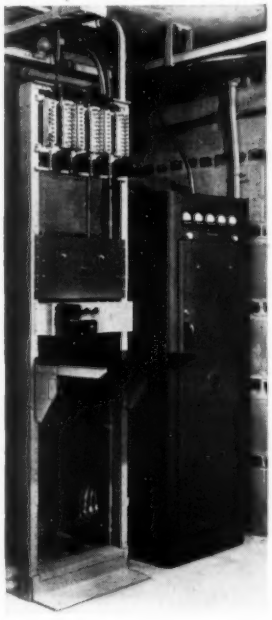
**No heating or other elaborate preparation is necessary. Simply apply a brush coat of the primer and then trowel on TMC pipe joint compound. It goes on smoothly and uniformly, without lumps or weak spots. It is flexible enough to absorb the ordinary stress of slight deflections without breaking or leaking. The joint will remain secure and tight because TMC compound will not disintegrate or decay.**

**Learn how your city can keep pipe construction and maintenance costs down. Send for free folder on TMC pipe joint compound.**

THOMPSON
MATERIALS CORPORATION
204 WEST STREET
NEW YORK 13, N. Y.
303 CORTLANDT STREET
BELLEVILLE 9, N. J.

# BELL SYSTEM uses Motorola 2-WAY RADIOTELEPHONE to round out its nationwide service

BELL SYSTEM MOBILE TELEPHONE SERVICE



## 35 LEADING CITIES *with more to come*

The Bell System's mobile telephone service, first introduced at St. Louis in June of 1946, is now providing service in 35 of the Nation's leading cities. Mobile service was introduced in these cities in the following order: St. Louis, Green Bay, Wis., Cincinnati, Detroit, Philadelphia, Newark, Chicago, Washington, Cleveland, San Francisco, Boston, Houston, Pittsburgh, Atlanta, Baltimore, Milwaukee, Columbus, New Orleans, New York, Indianapolis, Miami, Denver, Oklahoma City, Kansas City, Fort Worth, Memphis, Salt Lake City, Ottawa, Ill., Peoria, Ill., Springfield, Ill., Birmingham, Dayton, Los Angeles, Seattle and Toledo. Licenses had also been granted to operated stations in Minneapolis, Louisville, Richmond and Akron, and for a second channel in Boston. New York already had a second channel and several of the other cities which already had service were planning for second and third channels.

In many of the cities which now have mobile service, Motorola mobile transmitting and receiving equipment made by Motorola Inc., is being used. These cities include: Urban—St. Louis, Houston, Chicago, Philadelphia, Cincinnati, Washington, D. C., Cleveland, San Francisco, Detroit, Atlanta, Pittsburgh, Indianapolis, Newark, New Orleans, Milwaukee, Baltimore, Boston, Denver, Columbus, Miami, Fort Worth, Oklahoma City, Kansas City and Dallas; Highway—Chicago—St. Louis, Cincinnati and Green Bay.

FOR INFORMATION ON HOW 2-WAY RADIOTELEPHONE CAN SERVE YOU—*Write Direct to:*

Motorola Inc.

CHICAGO 51 • COMMUNICATIONS AND ELECTRONICS DIVISION

## New Check Writer and Signer With Insurance Gurantee

*The Todd Blue Streak Protectograph*

The Todd Co., Rochester, N. Y., is now prepared to deliver its new Blue Streak Protectograph check writer and signer with insurance policies at no cost, protecting the users of the machine against loss from forgery.

The mechanism performs six operations in a single process: imprinting, protecting, adding, listing, counting, and signing—as many as 2,500 to 3,000 checks in one hour.

The Blue Streak provides disbursement, safety, and control to the extent that amounts can not be changed or removed without destroying the check itself.

## Gardner-Denver Appointments

The Gardner-Denver Co., Quincy, Ill., has appointed L. L. Lawrence Manager of the Boston branch office, and A. H. Jones Director of the Export Office in New York City.

Mr. Lawrence was formerly in the New York City branch office, and Mr. Jones has served for many years as Manager of the Los Angeles branch. Mr. Jones was also elected Vice-president of the newly-formed Gardner-Denver Western Hemisphere Co.

## Toledo Awards Contract to Nichols Engineering

The Nichols Engineering & Research Corp., 60 Wall Tower, New York 5, N. Y., has been awarded a contract by Toledo, Ohio to remove two old manually-stoked incinerator units and install Nichols Monohearth mechanically-stoked units.

Toledo is the twenty-second city to install or begin construction of the Nichols Monohearth.

## Nordberg Appoints Brooks Sales Engineer

E. C. Brooks has been appointed sales engineer of the Heavy Machinery Div. of the Nordberg Mfg. Co., Milwaukee 7, Wis.

*E. C. Brooks*

Previously associated with Busch-Sulzer Bros., Diesel Engine Co., Mr. Brooks' experience has included general electrical engineering as well as the diesel field.

Mr. Brooks has already assumed the responsibilities and duties of his new position.


# A Roller For Every Job

**Sturdy, heavy-duty rollers, engineered to stand up under the toughest conditions. Pierce-Bear Tandem Rollers are powered by economical Allis-Chalmers 4-cylinder industrial type gasoline engines. Variable weights, from 3½ to 5 tons with built-in water tanks for ballast and wet rolling.**

Pierce Baby Bear
2½-3 tons

Pierce Medium Bear
3½-5 tons

**The new 2½-3-ton Pierce Baby Bear is designed for close-in work and small area maintenance. It works against a curb up to 25 inches high and within 1½ inches of a higher wall or building. Final drive is within the rear roll. Use Pierce-Bear Tandem Rollers for all-around performance. Write for folder.**

**Pierce-Bear Rollers**
**Lewis Manufactuing Co.**
415 Hoefgen Ave.—San Antonio 6, Tex.



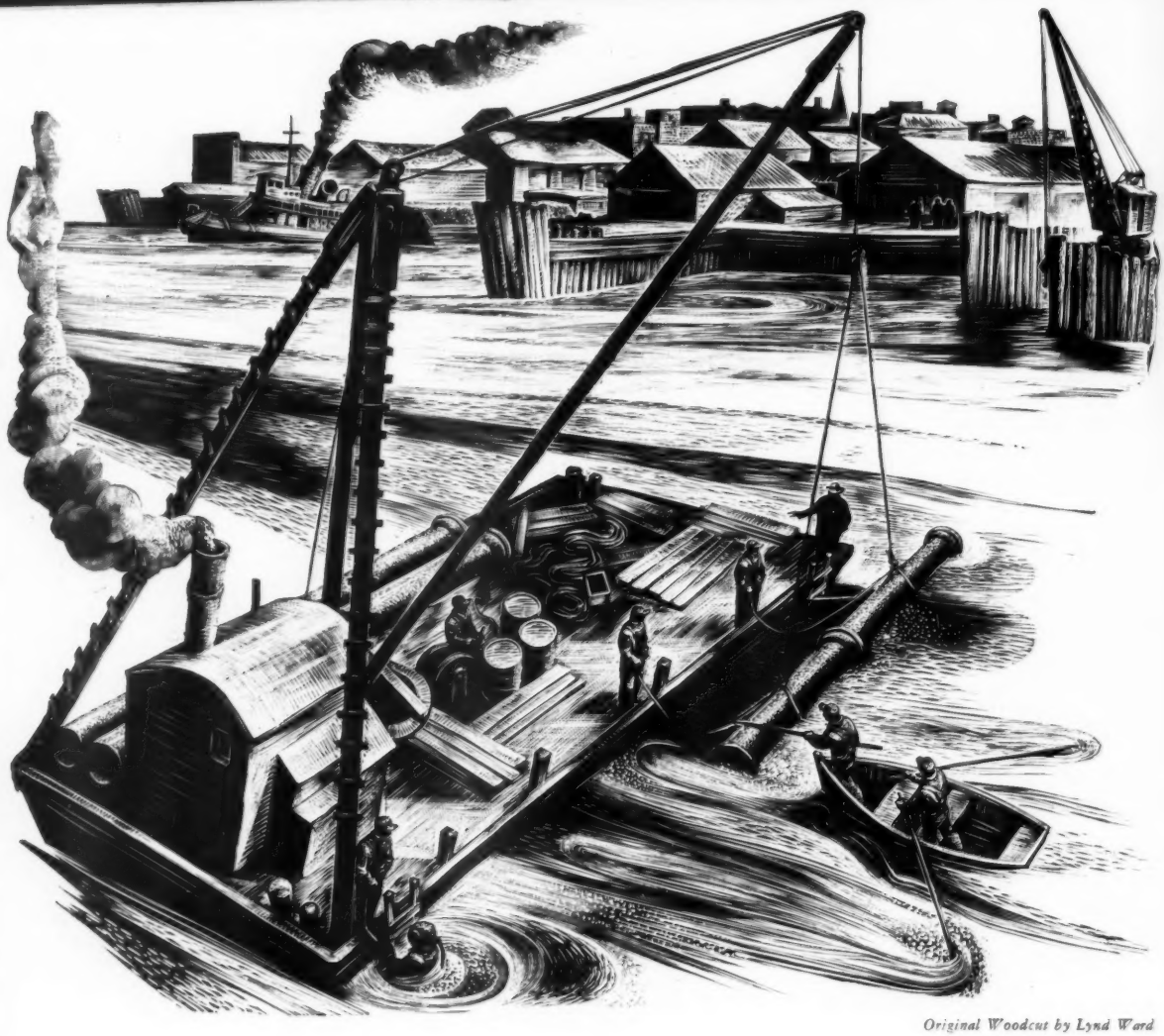
**BE SURE**
*of the*
**BEST**

*. . . with the "Diamond Line"*

Precise manufacturing processes plus the skill acquired by 91 years of experience is your assurance of the highest possible quality when you use items from McDonald's well-known Diamond Line. This Patent Cap Stop and Drain—flat way, high pressure with malleable tee or lever handle right or left, can also be furnished in a stop pattern. Production is up, and we welcome inquiries regarding prices and availabilities.

EST. 1856
McDonald

**A. Y. McDONALD MFG. CO.**
**DUBUQUE, IOWA**
BRASS GOODS • PUMPS • OIL EQUIPMENT



*Original Woodcut by Lynd Ward*

**Underwater installations, for which large quantities of cast iron pipe have been used through the years, frequently present special and sometimes difficult problems. Pipe design or installation methods, or both, may be involved. If you have such a problem, we shall be glad to share our extensive knowledge of how others have met similar conditions—an experience acquired in nearly fifty years of supplying U. S. Cast Iron Pipe for river-crossings and other subaqueous jobs.**

**U.S. cast iron PIPE**

U. S. PIPE & FOUNDRY CO.
General Offices: Burlington, N. J.
*Plants and Sales Offices throughout U.S.A.*

## C. L. Cummins Elected Chairman of the Board

C. L. Cummins was elected Chairman of the board of the company he founded in 1919, the Cummins Engine Co., Inc., Columbus, Ind. J. I. Miller was elected President at the same annual meeting of stockholders and directors.

*C. L. Cummins*

The firm was organized to build the Cummins oil engine, widely used in the automotive, industrial, and marine fields. In 1930, the development of the Cummins fuel distribution and injection system, which made possible the building of the first successful high-speed diesel, instigated a wide use of the oil engine in automobiles and buses.

Mr. Miller has been with Cummins since 1934.

Other officers elected by the board are: V. E. McMullen, executive Vice-president; R. E. Huthsteiner, Vice-president and General Manager; H. L. Knudsen, Vice-president of engineering; Carl R. Fox, Vice-president and work manager; D. C. Bottorff, Secretary and Treasurer; R. E. Lay, Assistant Secretary and Assistant Treasurer, and Edwin G. Crounch, Assistant Secretary.

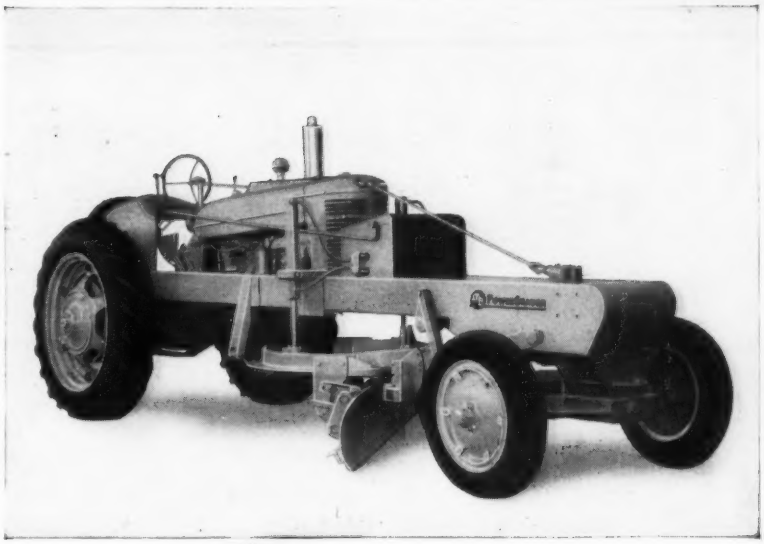
## Improved Chemical Feeder For Water, Sewage Service

An improved stroke adjustment which regulates the volume of liquid pumped, and which is especially useful for pumping one or more liquids in precisely metered quantities, has been announced by Milton Roy Co., 1327 E. Mermaid Ave., Philadelphia 18, Pa.

The micro-indicating adjustment, which comes with all standard Milton Roy chemical pumps, provides precise control of plunger stroke by means of a hand wheel and is accurate even for pumping in volumes as small as one pint per hour. A vernier dial permits quick and convenient resetting to any predetermined stroke length, to within 1/750 of the full length of the full stroke, without stopping the pump. Milton Roy pumps are available also with automatic motorized stroke adjustment.

Valves and parts are supplied in any metal or alloy that can be cast and machined, and in several plastics to meet practically all corrosion resistance requirements.

Detailed information of the device is contained in Catalog No. 146, which may be obtained by writing to the company.

Now MB POWER GRADER

In the new M-B Power Grader, Meili-Blumberg Corporation, makers of construction and industrial equipment for the past twenty-five years, have combined many new features around International Power to give users low cost road and street maintenance and, with the full line of attachments, an all-year tool. Check these features:

1. Hydraulic power direct on moldboard gives maximum blade pressure.
2. Handles all types of maintenance fast — 2 to 16 miles per hour at low cost.
3. All blade and attachments controlled from operator's platform.
4. Worm gear center-post steering for ease of operation.
5. Big 12 x 38 low-pressure tires turn engine power into PUSH.
6. Powered by big 40 H.P. International Tractor.
7. Husky all-welded frame — resists twisting.
8. Balanced weight means easy steering, steady traction, with approximately 7500 pounds blade pressure.
9. Built rugged to do tough jobs.
10. Attachments for every job — scarifier, snow plow, bulldozer, leaning front wheels, all-weather cab.

MB MARKER

10 TIMES FASTER THAN HAND STRIPING . . . . .

Does slow, tedious hand striping make it impossible for you to keep up with today's traffic demands? Does it endanger your safety record? Then consider using M-B Street Markers. With an M-B Marker, one man stripes ten times as fast as the man marking by hand. The machine handles ALL types of striping . . . can also be used as an all-purpose paint sprayer. Requires no experience. Hand-propelled or self-propelled models.

Complete Markers for Industrial, Street and all Highway Marking jobs. Ask for Bulletin No. 121.

MB MEILI-BLUMBERG CORP.

BOX A-6, NEW HOLSTEIN, WISCONSIN




XUM

# AUTOMATIC VOTING MACHINES

**WERE USED BY 14,000,000 VOTERS**
**AT THE NOVEMBER, 1946 ELECTIONS**

**Among the 3,775 Progressive Cities and Towns Using Automatic Voting Machines are:**

| | | | |
|---|---|---|---|
| New York City | Scranton | Pittsfield | Oshkosh |
| Buffalo | Louisville | Brookline | Des Moines |
| Baltimore | Dallas | Jersey City | Atlanta |
| San Francisco | San Antonio | Newark | Miami |
| Philadelphia | Hartford | Detroit | Jacksonville |
| Harrisburg | New Haven | Grand Rapids | Indianapolis |
| Erie | St. Paul | Mobile | Seattle |

**If Your Community Is Interested in a More Efficient and Less Expensive Voting System—Write**

**AUTOMATIC VOTING MACHINE CORPORATION**
**JAMESTOWN 55, NEW YORK**

# THE BEST NON-CORROSIVE AND ANTI-RUST COATING IN THE WORLD WILL FAIL UNLESS PROPERLY APPLIED

AS NATIONALLY APPROVED APPLICATORS OF SUCH MATERIALS AS ***NO-OX-ID***, ***BARRETT*** AND OTHER COATINGS WE COMBINE CRAFTSMANSHIP AND PRODUCT TO INSURE MAXIMUM PROTECTION ON—

***STEEL STAND PIPES***
***ELEVATED WATER TANKS***
***WATER MAINS***
***PENSTOCKS***
***LOCK GATES***
***OTHER WATER WORKS INSTALLATIONS***

**BUILDING INSTALLATIONS**

WHERE SURFACE OF PRESSURE AND GRAVITY TANKS, COOLING TOWERS, DEHUMIDIFIERS, AIR CONDITIONERS, ETC., REQUIRE TREATMENT OUR SERVICES ARE AVAILABLE.

SEND FOR FREE BOOKLET

**W. A. BRIGGS BITUMEN Co.**

**3303 Richmond St.**
**Philadelphia 34, Pa.**

New York Representative ALFRED CONHAGEN, INC.
429 W. 17th St. New York City Phone Chelsea 2-1676

INFILCO

# WATER CONDITIONING AND SEWAGE TREATMENT PLANTS

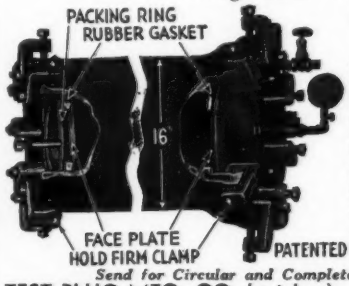
**Send for Bulletin 6200**
**Accelo Sewage Filter**

**INFILCO INC., 325 W. 25th Pl., Chicago 16**

"HOLD FIRM"

# A NEW TEST PLUG

*For Testing Mains Conveying*




WATER GAS
OIL AIR

For testing cast iron, steel, transite, soil and concrete pipe lines, without the necessity of valves; test pipe as you lay them; eliminate open trench and hazards; special for testing reclaimed pipe, valves and fittings. Installed by any unskilled laborer; withstands 300 lbs. hydrostatic pressure, light in weight; same clamps fit many sizes of pipe. Made in all sizes. Used by the City of Chicago, contractors and municipalities.

*Send for Circular and Complete Information*

TEST PLUG MFG. CO. (not Inc.) SKOKIE, ILL.

## Holophane Appoints Rae

Gene G. Rae has been appointed manager of the Controlens Division of the Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y. This division has been organized to assist accredited Holophane lens distributors in the design, promotion, and sale of lighting equipment employing Holophane Controlenses.

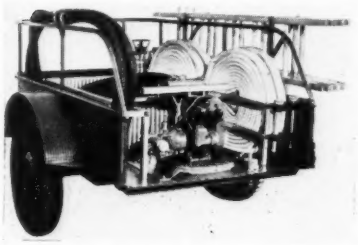
*Gene G. Rae*

Mr. Rae has been with the company since 1937, first in the capacity of illuminating engineer and then as field engineer in Washington, D. C.

## Low-Cost Fire Unit

Consisting of a gasoline-driven high pressure utility pump, 75 feet of supply hose and 250 feet of fire hose; an 18-foot, 3-section extension ladder; a fire axe, and a hand-type extinguisher, the Porto-Pumper offers a complete high-pressure portable-pumping and fire-fighting unit that is particularly valuable where it may be impractical to install expensive equipment yet where fire-protection is essential.

Small towns and villages, municipal resorts, railroad and lumber yards, and



***The Porto Pump—a compact, easily transportable unit.***

shipyards, and forest preserves may find use for this equipment which is attachable to automobile, jeep, or truck for rapid transportation.

Manufactured by Porto-Pump, Inc., 227 Iron St., Detroit 7, Mich., this unit is estimated by the manufacturer to cost about one-sixth of the average minimum-priced, fire-fighting-pumping unit on the market.

## Propeller-Head Sprinkler

The Cannon Electric Development Co. has begun distribution of its new ball-bearing lawn and garden sprinkler. Anchored by means of a spike and round mud plate, the sprinkler stands 14 inches above the ground and has a diecast aluminum-alloy head with a solid zinc-alloy base.

***The Cannon Propeller Head sprinkler type No. SS-1-A.***

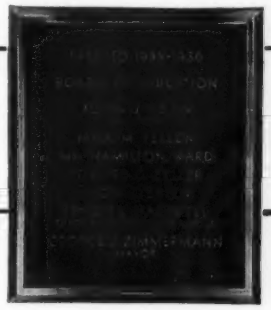
The propeller head whirls on ball bearings set in stainless steel races. The eight oblong jets are designed to yield a fine spray by permitting the streams of water to hit an angular baffle.

A standard hose coupling nut is included with the spike, and the sprinkler may be obtained with a "sled" base attachment.

A catalog may be obtained by writing to the Catalog Dept., Cannon Electric Development Co., 3209 Humboldt St., Los Angeles 31, Calif.


**SPECIALISTS in**

**BRONZE TABLETS**



**For Every Municipal Need**

**Memorial and Commemorative Tablets for Municipal Buildings—Hospitals • Homes • Courts • Schools • Art Centers.**

**Bronze Tablets and Letters for Statues, Cornerstones, Doorplates, Signs.**

***Send for illustrated catalog with complete "order-by-mail" information.***

**UNITED STATES BRONZE SIGN CO., INC.**

*"Bronze Tablet Headquarters"*

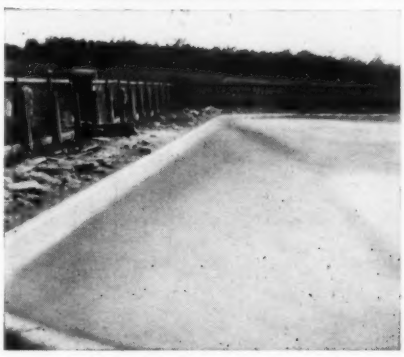
**Dept. AC**

**570 Broadway New York 12, N. Y.**

**CEMENT GUN COMPANY**

**"GUNITE" CONTRACTORS**

**GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.**



**NO MAINTENANCE IN 22 YEARS**

The before and after photos show a reservoir we re-lined with "GUNITE" in 1925 for the Village of East Aurora, N. Y. Recently Mr. V. E. Haemmerlein, Village Engineer, wrote us:

*"The job you did of Guniting our reservoir is still in first class condition. Some hair cracks have developed near the top. I drilled one-half-inch holes where some of these cracks showed but find that they are only about one inch deep. They do not go beyond reinforcing. We have had no maintenance whatsoever."*

We can similarly solve your problem if you have an old leaky or disintegrated reservoir. We invite you to call on us for complete information, recommendations or estimates on any "GUNITE" work which you may be planning.

**Our 72-page bulletin D2300 describes this job and scores of other profitable uses of "GUNITE." Write for your free copy today.**

# Is this a Familiar Scene in your town?

It is unfortunate but true, that some towns still permit trash and rubbish to be deposited at the rear of buildings, in alleys, and even on side streets as shown in the scene above. In addition to being feeding stations for rodents and flies . . . breeding spots for disease, it is a very costly method of trash and rubbish collection.

All of these undesirable features can be eliminated at once, and at tremendous savings, with the Dempster-Dumpster System of trash and rubbish collection. Why pay for all the extra time and extra labor it takes to gather and load this scattered rubbish when one man and one Dempster-Dumpster Hoisting Unit can do the work of 4 or 5 ordinary trucks?

The Dempster-Dumpster System comprises one Dempster-Dumpster Hoisting Unit mounted on your truck chassis, and any number of required detachable bodies, of several different designs, and all handled by the same truck unit. Bodies range in size from 4 to 10 cu. yd. capacities, and are placed at convenient points as trash receptacles in the business district, factory areas, schools, residential areas and housing projects.

As these bodies are filled, the Dempster-Dumpster truck hoisting unit makes scheduled rounds picking up, in turn, each loaded body . . . hauls it . . . dumps it and returns the empty to its original location. One man, the driver, handles the entire collection operation.

The neat, sturdy, rubbish bodies are completely enclosed . . . no wind can scatter the rubbish . . . no rats or flies can contaminate it . . . a simple, clean, sanitary and efficient system, and operated on great savings to any town.

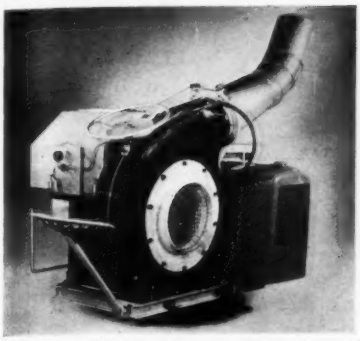
Write today for complete information and illustrated literature on the Dempster-Dumpster System.

Left Above: Hoisting Unit and Apartment Type Body in carrying position. Center: Truck Hoisting Unit with body on ground. Bottom: Truck Hoisting Unit with body in dumping position. Note how the bottom forms a chute for the rubbish.

**DEMPSTER DUMPSTER**
TRADE MARK REG.

**DEMPSTER BROTHERS, Inc.** 367 SPRINGDALE, KNOXVILLE, TENNESSEE

## Aero-Mist Sprayer Controls Insects



*The Aero-Mist sprayer may be mounted on a ¾-ton platform truck.*

The suppression of insects through the use of the Aero-Mist sprayer for spraying entire communities as well as breeding places of flies and mosquitoes has been effected by municipalities as well as industry.

Through the use of an especially designed fan operating at 3,600 rpm, the sprayer shoots a practically invisible mist of concentrate on affected areas at a speed of 150 mph. The sprayer can complete a 360 degree circle, thus eliminating backing and turning of the truck on which the mechanism is mounted.

Designed with a directional air nozzle, its Benway spray jets inject insecticide concentrates into high-speed air currents. Equipped with a Novo water-cooled engine, the machine has a forty-seven-gallon concentrate tank sufficient for from three to four hours of spraying, and air-flo baffle plates to secure directional and controlled application of air-borne spray particles. All controls are within range of the operator's seat, thus enabling one-man operation.

Further details may be obtained from the Lawrence Aero-Mist Sprayer Co., Dept. A, 59 Federal St., Greenfield, Mass.

## LeTourneau Appoints Nichols

R. G. LeTourneau, Inc., Peoria, Ill., has appointed Robert P. Nichols assistant Domestic Sales Manager, to work in conjunction with S. D. Means, Domestic Sales Manager.

*Robert P. Nichols*

Mr. Nichols was formerly sales supervisor of the export division. Previously, he was associated with the Caterpillar Tractor Co. as a special representative in Central and South America.

## Small Tractor-Dozer For Park Landscaping

A new small-track tractor and dozer unit which works close and is particularly efficient in trimming around trees is being manufactured by The Oliver Corp., Euclid and Lamb Aves., Cleveland 17, Ohio. The combination eliminates a great amount of hand labor, and makes it applicable for municipal parks and playgrounds. Since it works close to curbings and houses, it may also be used for landscaping.

The new dozer, called the Imp, is entirely front-mounted, hydraulically operated with raise, lower, floating, and hold positions. Lightweight and positive in traction, the unit can operate in soft terrain. It is mountable on a small crawler tractor, and develops 4 hp per foot of blade length.

*This Oliver tractor-dozer trims close to obstacles, even on soft terrain.*


Endurance and POWER ... plus easy handling and light-weight!

R.P.M. IS THE FIRST power mower with a rugged engine developed expressly for mower service — and almost entirely of weight-saving aluminum.

OPERATES HOUR AFTER HOUR DEPENDABLY without pampering or mechanical tinkering.

Here is a power mower with REAL STAMINA for hard service day in and day out; endurance such as you've never before seen in a 21-inch-cut mower. Every engine tested under full load before and after installation in the mower; fully guaranteed.

You'll get a new thrill in using it, too! Unbelievably light; weighs only 56 pounds! You can "turn on a dime," stop, cut forward or backward—all without manipulating any controls. Gets clear up to walks and walls, in under shrubbery. Breezes right through tallest, toughest, thickest grass or weeds.

Easy-starting 2½ h.p. 2 cycle gasoline engine; drives a tempered rotary blade with safety release. Patented housing draws grass erect and ejects mulchified cuttings off to one side away from operator's feet.

4 MODELS TO SUIT YOUR CITY'S VARIOUS NEEDS

In addition to the rugged Rotoflo Heavy-Duty model described above, there are two Standard models, one of 20-inch cutting width, weighing 47 lbs., and the other of 18-inch cutting width weighing 45 lbs., both using a one-horsepower 2-cycle engine. The Rotoflo Junior cuts a 16-inch swath, weighs 45 lbs., and has a twin-cylinder 2-cycle engine of ⅝ horsepower. Each Rotoflo is built to give maximum value and service for its size.

Avoid servicing grief and wasted time! Get easier, faster grass cutting and neater, healthier turf. Write for full information today!

ROTOFLO POWER MOWERS

563 Oak Street, Kansas City 6, Missouri




XUM

# THESE INSERTS STAY PUT

... which is one more reason why Mack trucks click off extra thousands of trouble-free miles.

They're Mack Permafit exhaust valve seat inserts. They're faced with Stellite and copper plated. They have exceptional depth and are shrink-fitted into their pockets. Most important of all -- they're made of Mack's exclusive Niferrite alloy.

This secret alloy has the unique property of retaining a permanently firm fit within the pocket regardless of temperature variations between the insert and cylinder block. Thus, distorted and loose valve seat inserts are prevented.

To Mack owners this means lower maintenance costs and more profitable mileage. Inserts have unequalled resistance to wear. Valve life is prolonged. There's less need for grinding. Engines maintain peak performance longer -- stay more economical longer.

This exclusive Mack alloy is a good example of the extra something that goes into every part of a Mack truck. You get more work out of Macks because we put more work into them.

**Mack** since 1900, America's hardest-working truck

Mack Trucks, Inc., Empire State Building, New York 1, New York.
Factories at Allentown, Pa.; Plainfield, N. J.;
New Brunswick, N. J.; Long Island City, N. Y. Factory
branches and dealers in all principal cities for service
and parts. In Canada, Mack Trucks of Canada, Ltd.

## Trucks for every purpose

These Mack dump trucks give **double duty** for the **City of Waterbury, Conn.** Equipped with plows they keep streets cleared of winter snows—other times they're busy on street maintenance work.

5142-26

## A New Broom for Sweeping Large Areas Clean

The Hough-International tractor sweepers are available in models to fit the International Industrial "A" or Farmall "A" tractors, and the I-4, I-6, and ID-6 tractors. They are for cleaning large areas—airports, parks, streets, and roadways prior to asphalt application— and they sweep clean.

*Hough-International tractor sweeper.*

The brush on all models is 30 inches in diameter, with a speed of about 1/10 of the engine rpm. Made of Hickorette, with a full-length brush shaft and dust hood, the brush is driven by a front power take-off through ball-and-roller-bearing gear box. Mounting takes about an hour, so that the tractor can be used without difficulty for other attachments.

The International Industrial "A" and Farmall "A" models have brush lengths of 72 inches and a sweeping path of 60 inches. The I-6 and ID-6 models have 84-inch brushes with a sweeping path of 72 inches, and the I-4 brush is 72 inches long with a sweeping path of 60 inches.

The broom is permanently set at a 30 degree angle so that all material is swept to the right of the operator.

A Hough blower, mounted on the rear of the tractor, may be used in conjunction with the model I-6 and ID-6 sweepers for removing coarse materials and dust completely preparatory to paving.

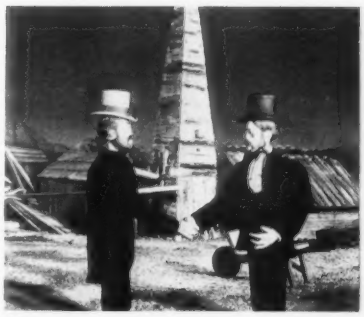
Illustrative folders with specification details may be obtained by writing to The Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill.

## Oil Exploration Film Available to Civic Clubs

*Prospecting for Petroleum*, a full-color film dramatizing man's search for oil, will be released shortly by the Shell Oil Co., 50 West 50th St., New York, N. Y., and may be seen by civic clubs, schools, churches, lodges, and other groups. The film is designed not only to entertain, but also, through the use of Hollywood's newest animation technique, to clarify scientific aspects of oil exploration hitherto difficult to picture.

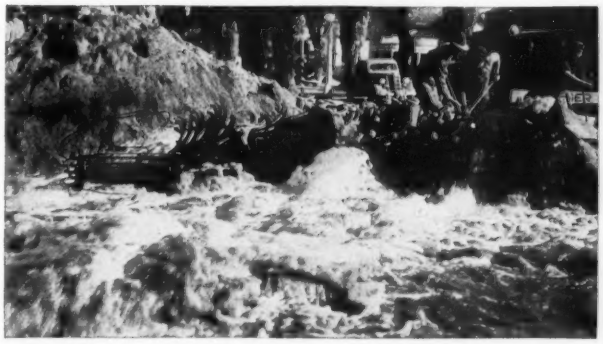
Most of the film is devoted to picturing the progress of geologic science during the past century. Particularly vivid scenes illustrate how scientists use such instruments as the magnetometer, the seismograph, and the gravimeter to locate underground rock structures which *might* bear oil, eliminating the margin of guesswork to an appreciably large degree.

To film the story using actors was impossible, if the picture was to include scenes demonstrating the formation of oil and the operation of some of the geologic devices. Shell, therefore, engaged Hollywood's George Pal to make the picture with his new animated technique, the photography of actual wooden figures and miniature sets. The film runs about 23 minutes.



*The animated picturization of the first oil well.*


# YOUR PROBLEM IS OUR PROBLEM



In 1940, Riverside, California, had two miles of 30 and 36-inch pipe to clean. We built a special combination tool that took care of both sizes of pipe without making any change for the difference in pipe sizes. Both systems were re-lined after cleaning. Regular annual inspections since that date show no breaks of any kind and indicate fully 50 years more of continual service since both pipe lines are specially protected by exterior wrapping.

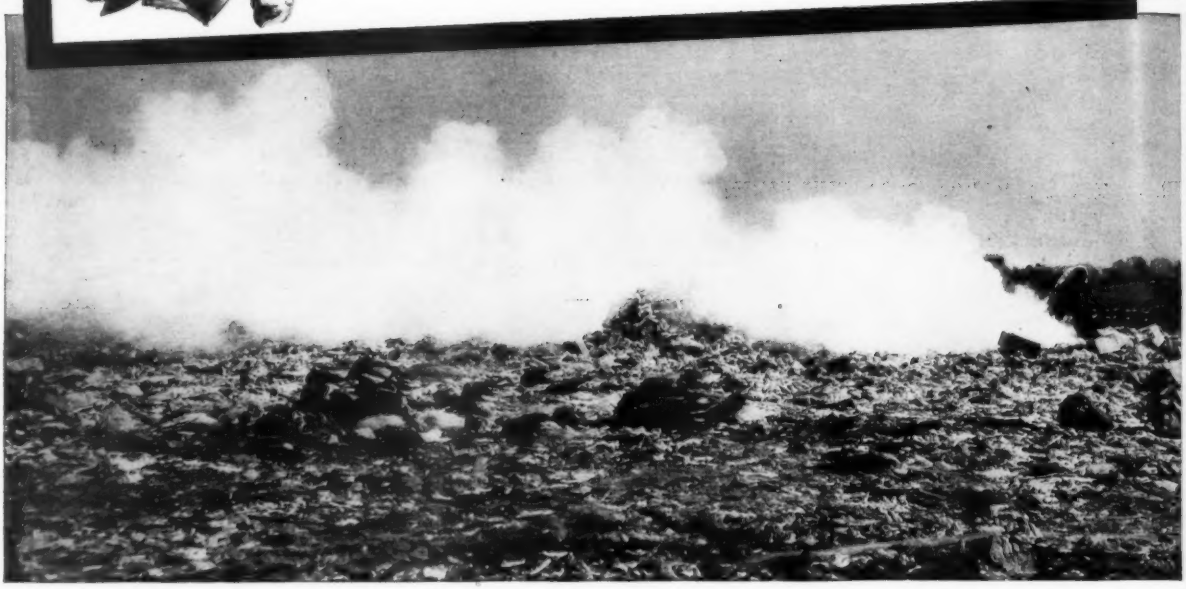
***Write for illustrated circular today. Address Department AC-6.***

**FLEXIBLE UNDERGROUND PIPE CLEANING CO.**

**9059 Venice Blvd., Los Angeles, California**

855 Beard of Trade Bldg. Chicago 4, Ill.
401 Broadway New York 13
147 Hillside Ter. Irvington, N. J.
P. O. Box 165 Atlanta
41 Greenway St. Hamden, Conn.
1624 Harmon Place Minneapolis 3, Minn.
29 Cordan Ave. Roslindale 31, Mass.
P. O. Box 694 Pittsburgh
P. O. Box 447 Lancaster, Texas

# "Yes, sir . . . THAT TIFA FOG GETS THOSE PESTS!"



## . . . DEATH-DEALING FOG FOR INSECTS

***TIFA*** **is the *Quick . . . Sure . . . Economical* method of insect pest control.**

**TIFA discharges newly developed as well as the older insecticides, fungicides, repellents or hormones in a *true fog* that *spreads quickly* over a wide area . . . *clings* to all objects in its path . . . *permeates* the smallest crevices.**

**TIFA . . . a compact, easily handled one-man unit, powered by a standard-make gasoline engine . . . can be used wherever insect pest control is essential to public health and welfare . . . on garbage or fill dumps, on beaches, in parks, resorts, and swamps. And it's BUILT TO LAST.**

**TIFA**

**TODD INSECTICIDAL FOG APPLICATOR**

***Write for illustrated folder on sensational TIFA—full details on how it operates, what it does, and official comments on its astonishing effectiveness.***

**A Product of**

**COMBUSTION EQUIPMENT DIVISION**

**TODD SHIPYARDS CORPORATION**

**81-16 45th Avenue, Elmhurst, Queens, N. Y.**

## Flusher for Cleaning, Spraying, or Fire Fighting

The Rosco street flusher is a multiple-purpose unit that may be used for a great variety of purposes—for street sprinkling and cleaning, sewer flushing, spraying, fire fighting, transfer of water, and power pumping.

With a pneumatic tire for rapid transportation, the Model MFQ flusher comes with a centrifugal pump with adjustable flushing and sprinkling nozzles controlled by operating levers at the front of the unit within easy reach

***This power flusher removes dirt, refuse, snow, and slush from pavement surfaces, and doubles as a fire-fighting unit.***

of the operator; steel tank with baffles and overflow; tank manhole with hinged cover; all-welded steel frame, and an air-cooled engine.

Additional information and descriptive literature #518A may be obtained by writing to the Rosco Mfg. Co., Minneapolis, Minn.

## Foster Replaces Barabe

C. A. Barabe, assistant Eastern Division sales manager of Caterpillar Tractor Co., Peoria 8, Ill., since June 1945, will start a six - month medical leave of absence June 15, and W. N. Foster, divisional district representative, has been promoted to the assistant managership.

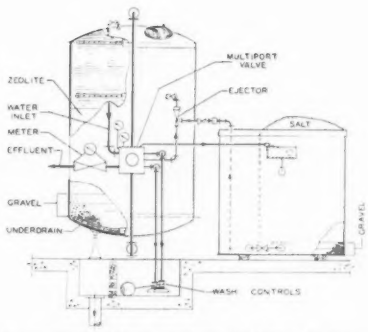
*W. N. Foster*

Mr. Foster is a graduate of the University of Illinois, and has been with Caterpillar since 1934.

## New Water Softener

A new Liquon Zeolite water softener, designed to assure correct distribution of the incoming hard water to prevent channel or short-circuit through the zeolite bed, is being manufactured by the Liquid Conditioning Corp., 114 E. Price St., Linden, N. J. A similar distribution system controls the outflow of the dirty backwash water and the incoming brine which regenerates the zeolite.

Another feature of the mechanism




is an underdrain system below the zeolite bed which maintains collection and unimpeded flow of the softened water. The unit may be provided with a multiport valve which controls all operations of the softening, backwashing, and regenerating cycles.

The use of a new type of synthetic resin zeolite, Liquonex CR, reduces the size of the unit. This sodium cation exchanger is non-siliceous. Further compactness is achieved by the combination of salt storage and brine solution compartments into a single container, together with measuring control.

Details of the design and adaptability for particular requirements may be obtained by writing to the company, Dept. AC.


HORIZONTAL INFILTRATION COLLECTORS

The modern way of getting a permanent, adequate supply of clear, cool groundwater by infiltration from rivers or lakes.

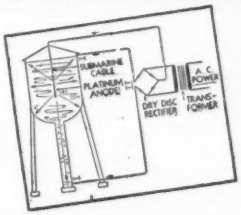
*For complete details write to:*

**RANNEY METHOD WATER SUPPLIES, Inc.**

**63 S. High St., Columbus, Ohio**

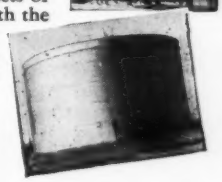
Water Supply Engineers & Contractors

**RUSTA RESTOR *Prevents Rusting***




**Modern, Service-Proved Cathodic Method Gives Lasting Protection Against Rusting—Minimizes Tank Maintenance—Costs Only Two Mills ($0.002) Per Year Per Square Foot of Surface Protected.**

Approved and endorsed by national and state authorities, Rusta Restor, the modern cathodic method, maintains the tank in a "neutralized" state that not only prevents rusting but also removes the products of any earlier rusting. It eliminates both the loss of service, and cost, of interior painting. Rusta Restor equipment is inexpensive to install, and cheap to operate. Used from coast-to-coast. Send for full details today.



**RUSTA RESTOR**

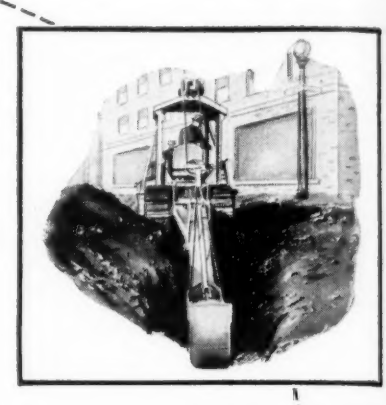
A DIVISION OF

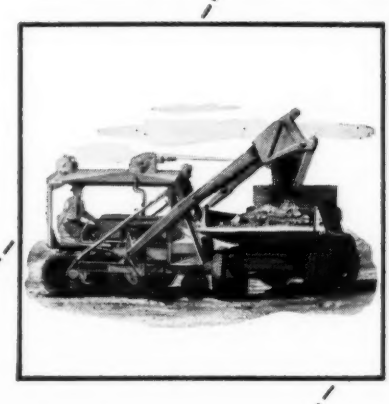
**THE JOHNSTON AND JENNINGS COMPANY**

861 ADDISON ROAD • • • CLEVELAND 14, OHIO

# ditchdigger
# backfiller
# loader

# in 1 package





Here's the right combination for economical ditching . . . an Oliver "Cletrac" track tractor, a Sargent Overhead Shovel, Backhoe and Bulldozer. The Backhoe digs the trench . . . from 3½ to 6½ feet deep . . . the Overhead Shovel lays the pipe and loads out the excess earth and the Bulldozer backfills the ditch and compacts the fill. And powered by an Oliver "Cletrac," it's a package of rugged machinery that not only cuts your equipment costs but simplifies your jobs.

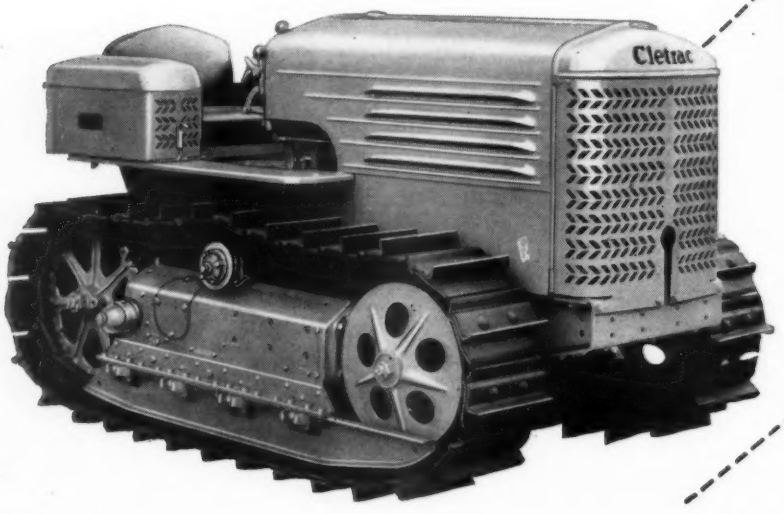
Converting the unit from Backhoe to Overhead is simplicity itself. Boom and bucket can be attached in an hour and detached in 10 minutes. Shovel arms and bucket can be attached and detached equally fast.

When you're not ditch-digging, this unit can be used to load sand, gravel, stone, debris or snow.

For all the facts, see your Oliver "Cletrac" dealer or write The OLIVER Corporation, 19300 Euclid Avenue, Cleveland 17, Ohio

## Cletrac

**a product of The OLIVER Corporation**




OLIVER
Cletrac
SALES
SERVICE

*"THE SIGN OF EXTRA SERVICE"*

## New Power Motors by Rotoflo

*The Rotoflo heavy-duty power mower has a cutting swath of 21 inches.*

R. P. M. Mfg. Co., 401 Independence Ave., Kansas City, Mo., has announced three new companion models to the Rotoflo heavy-duty 21-power mower: the Rotoflo Junior 16, Standard 18, and Standard 20.

The Junior model has a cutting width of 16 inches and is powered by a twin-cylinder engine that develops over 5/8 hp. The Standard models have cutting widths of 18 and 20 inches each, and are powered by a twin-cylinder engine that develops one hp. All models have two-cycle vertical crankshafts; air cleaners; patented one-piece aluminum rotor housings; tempered steel, rotary cutting blades; safety releases; six-wheel suspension; full-floating, tubular steel handles, and rubber tires.

The Junior model weighs 55 pounds; the Standard 18, 45 pounds, and the Standard 20, 47 pounds. They are priced F. O. B. Kansas City, Mo., factory, at $139.50 for the Junior 16; $159.50 for the Standard 18, and $179.50 for the Standard 20.

## New Sales Manager for Rusta Restor

George L. Fox has been appointed sales manager of the Rusta Restor Division of The Johnston & Jennings Co., 861 Addison Rd., Cleveland 22, Ohio, manufacturers and installers of cathodic equipment to prevent rusting of steel tanks.

*George L. Fox*

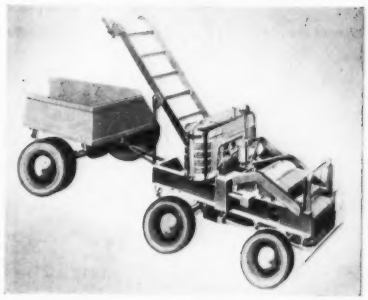
Mr. Fox formerly represented the company in Michigan and Ohio. He succeeds A. B. MacTaggart, who is retiring from sales work to enter the research and development fields.

## Powered Brush Hog Cuts Tree Trimmings

The new Mitts & Merrill Brush Hog is adaptable for municipal park departments and forestry services, cutting tree trimmings, brush, fallen timber, and other plant waste into chips.

The brush hog utilizes twenty-four revolving knives and two stationary bars, reducing the chips at the rate of from 5,000 to 6,000 pounds per hour.

Fully mobile and easily transportable, it is powered by an International gasoline motor, with power feed and V-belt drive. Specifications may be obtained by writing to Mitts & Merrill, Saginaw, Mich.

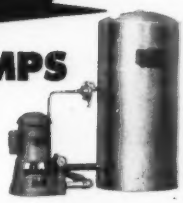


*Pictured above is the Mitts & Merrill Brush Hog for cutting woody plant waste into chips which can be sold commercially.*

**Advanced PEERLESS JET PUMPS**

***Economically Produce the Water You Require for Light Industrial Needs***

**Capacities: 120 to 7500 Gals. per Hour. FROM WELL DEPTHS TO 120 FEET.**

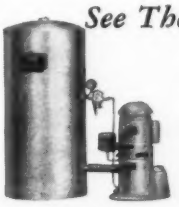


The Peerless engineering achievement of designing and building more efficient pumps with fewer moving parts has again been most successfully applied in the advanced Peerless Jet Pumping System. The trouble-free Peerless Jet Pump principle ingeniously applies the natural force of gravity, plus a minimum of mechanical power, to lift water upward by pressure from the Jet and force it to a pressure tank by means of an impeller. There is no simpler pump principle now being utilized where water lift requirements are comparable.

Peerless Jet Pumps are easy to understand, install, operate and maintain. Once the constant-pressure Jet Pump is in operation, adjustment or repair is rarely needed. Extremely compact in design. Double or single pipe systems available in sizes from ¼ to 3 H.P. Quietly supplies the water you require whether installed over the well or offset at a distance from the water source.

Ideally applied to wells 2" inside diameter and larger for water supply requirements of light industry including ice and refrigeration plants, creameries, dairies, milk plants, institutions, hotels, laundries, municipalities, motels, schools, etc.

*See The* **PEERLESS Water King** *Unique in design and operation. For shallow well installation only.*



Fully protected Under R. Moineau U. S. & Canadian patents.

**CAPACITIES: 275 to 860 Gals. per Hour.** For trouble-free simplicity of operation, this unique pump utilizes the same "magic" pumping element of the Peerless Hi-Lift Pump. Hard chrome pumping element wholly positioned and protected within pump base is highly resistant to abrasive and corrosive action. Assures a clean constant water supply. Requires a minimum of space and attention. 100% automatic. Easily installed over well or off-set.

***Write for Bulletins describing these two most efficient pumps.***

**PEERLESS PUMP DIVISION**

*Food Machinery Corporation*

*Factories:* Canton 6, Ohio • Quincy, Ill. • Los Angeles 31, Calif.

*District Offices:* Canton 2, Ohio; Philadelphia: Suburban Square, Ardmore, Pa.

Atlanta: Rutland Bldg., Decatur, Ga.; Dallas 1, Texas

# *in its vigil*
## LIES THE KEEPER'S REST

Keepers of property rest easier when grounds are protected with a well-erected Chain Link Fence. For this fence acts as a constant sentinel 24 hours a day, preventing unauthorized entry and the risk such trespassing may involve.

Factories, reservoirs, airports, schools, railroads and playgrounds have found that a sturdy Chain Link Fence permits full use of property area and provides years of trouble-free protection. Several types of top finish (6-, 5-, or 3-strand barbed wire, barbed or knuckled selvage) are available, depending upon the degree of protection required.

The fence and fabric of Wickwire, Colorado and Calwico Brands of Chain Link Fence are of carefully selected steel wire, heavily galvanized. Fittings are of malleable iron and pressed steel, heavily galvanized, or aluminum.

### FREE ESTIMATES

Our representative in your locality will be happy to cooperate in helping solve your fencing problem. Without obligation he will measure the property, draw up specifications and submit estimates for fence material ready for erection or covering complete installation. Write to our nearest office for full details.




### *NEW*—AND YOURS FOR THE ASKING

This profusely illustrated 24-page Wickwire Spencer Chain Link Fence catalog shows proper fence and fittings for various types of real property. Specification charts, detailed drawings, erection instructions and other essential data are all arranged for quick reference. For your copy write Chain Link Fence Dept., Wickwire Spencer Steel, 361 Delaware Ave., Buffalo 2, N. Y.

## CHAIN LINK FENCE

WICKWIRE · COLORADO · CALWICO

DIVISIONS OF THE COLORADO FUEL AND IRON CORPORATION

Wickwire Spencer Steel, 361 Delaware Ave. Buffalo 2, N. Y. | Colorado Fuel and Iron Corp. Continental Oil Bldg. Denver 2, Colo. | California Wire Cloth Corp. 1001 22nd Ave. Oakland 6, Cal.

CF&I

## Easy Sidewalk Clearing With Snowplow

Shown above is the picture featured in newspapers throughout the country: Sister Alexia, of Mount Assisi Academy, Pittsburgh, Pa., plowing snow with the aid of a Bolens Huski 2-wheel tractor and snowplow.

Municipalities, schools, and institutions find that this equipment is handy and economical not only for snow clearing, but during the summer when, attached to the Bolens Huski Unisickle mower, it does a fast job of mowing.

There are a number of other attachments particularly useful for small gardening areas—plows, cultivators, harrows, seeders.

There are two models available: the Gardener and Hi-Boy with 3-hp engines; the Power-Ho, rated at 1 to 1½ hp.

These machines are manufactured by Bolens Products Div., Food Machinery Corp., Port Washington, Wis.

With the use of these additional tools, the Unisickle becomes a year-round instrument suitable for almost any type of operation that is necessary to care for the medium-sized plot of ground, whether or not it is under cultivation.

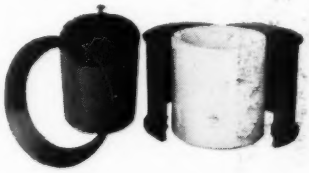
## Ford Appoints Fournier; Gossett Named Director

C. J. Fournier, supervisor of the service section of the Central office parts and service department for the past two years, has been appointed manager of the Southwestern region parts and service department of the Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich. William T. Gossett, Vice-president and General Counsel, has been named a Director of the company. Mr. Gossett succeeds Herman L. Moekle.

Both Mr. Fournier and Mr. Gossett have already assumed their new positions and the attendant responsibilities.


STEEL FORMS
*for* **CONCRETE**
METER BARRELS

Ford Concrete Forms are made in a variety of diameters and lengths. The use of these forms makes the manufacture of meter box barrels easy and inexpensive. Many water works use them to provide employment for men on rainy days.



Ford Forms include all accessories necessary for fabrication of concrete meter box barrels. Write for catalog and complete information.

The FORD
METER BOX COMPANY, INC.
Wabash, Indiana

No. 7



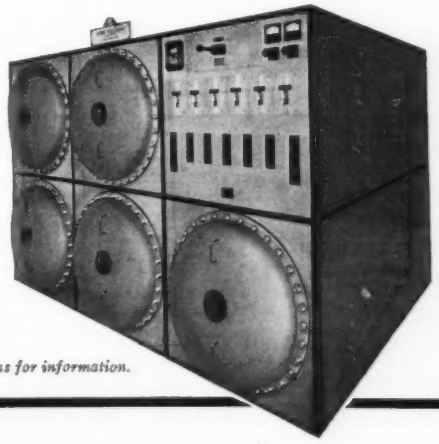
YOUR WATER SUPPLY
*Complaints or Compliments?*

It may be no longer necessary to endure endless complaints from bad tastes and odors in your water supply.

Ozonation might solve this problem by oxidation. Tastes and odors from industrial pollution, algae and decayed vegetation are definitely reduced and often completely eliminated.

Taste and odor removal is not all—Ozonation has a plus value,—it is also a powerful germicide.

The net cost of Ozonation is surprisingly low in view of the great improvements it brings and the chemicals it saves.



WELSBACH

*Write us for information.*

OZONE PROCESSES DIVISION
THE WELSBACH CORPORATION
1500 WALNUT ST. PHILADELPHIA 2

***For uniforms that sell quality on sight—demand***

# REEVES ARMY TWILL

*Look For This Label In Your Uniforms, Utility and Work Clothes!*

**"FROM COTTON TO CUTTER"**

SMART looking uniforms of durable Reeves Army Twill can do an important selling job in the contacts your employees make with the public. The high tensile strength of this fabric assures rugged wearability. Its vat dyed colors are fast to sun, water and perspiration. Sanforized Shrunk*, it retains smart tailoring. Remember—over 90 million yards of this same cotton fabric was used by America's fighting forces—exceeding Government specifications under the toughest combat conditions.

**Residual shrinkage less than 1%.*

**THE REEVES FABRIC GROUP INCLUDES:**

Reeves Army Twill • Glengarrie Poplin
Reeveking Gabardine • Byrd Cloth
Marine Herringbone • Mountain Cloth
Warrior Twill • Pima King Broadcloth

**MADE OF FINE COTTONS**

SPINNING WEAVING DYEING FINISHING Reeves FABRICS

**REEVES BROTHERS, INC.**

**54 WORTH STREET, NEW YORK 13, N. Y.**

REPRESENTATIVES IN: *Akron • Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • Portland, Ore. • St. Louis • Montreal • Toronto*

## New Portable Tire Demounter

A new manually-operated tire demounter, the Presto Model B-1, has been placed on the market by Lee Engineering Co., Pawtucket, R. I.

The unit incorporates the Simplex-Jenny Center-Hole hydraulic jack, which develops over 60,000 pounds

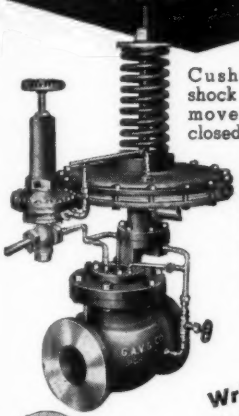
pulling pressure. It is adjustable to demount any size tire from 7.00-15 to 24.00-24 on trucks, buses, and heavy vehicles. Constructed of steel, light in weight, and portable, the demounter does not require any sources of electricity or air.


GOLDEN-ANDERSON

Single Acting Differential

ALTITUDE

VALVES



Cushioned against shock or jar as valve moves into open or closed positions. Needle valve control will instantly regulate speed of operation to existing pressure condition. 150 lb. to 400 lb. working pressure.

Write for Descriptive Catalog

GA

GOLDEN-ANDERSON VALVE Specialty Company

PITTSBURGH 22, PA.

If you're planning a public works project

YOU NEED THIS FREE BOOK

THIS book enables you to see for yourself just what makes a fence "tops" in protection. It shows the special features of construction and design which distinguish Cyclone Chain Link Fence . . . which keep it as firm through the years as when it was first erected by Cyclone's own factory-trained crews.

By fully describing all 14 types of U·S·S Cyclone Fence, this book also makes it possible for you to specify, right in your original plans, the type of fence best suited to your particular needs. As a result, you get full protection right from the start—greater harmony with your project — and often economies of installation, too. Remember, no job is too large or too small for us to serve you.

Why not send for this book today? It's fully illustrated and packed with helpful information. And it's yours for the asking.

CYCLONE FENCE DIVISION

(AMERICAN STEEL & WIRE COMPANY)

Waukegan, Ill. · *Branches in Principal Cities*

United States Steel Export Company, New York

CYCLONE FENCE DIVISION · American Steel & Wire Co. · UNITED STATES STEEL — USS CYCLONE FENCE

Cyclone Fence
Waukegan, Ill., DEPT. B-67

Please send me, free of charge, your 32-page book on Fence.

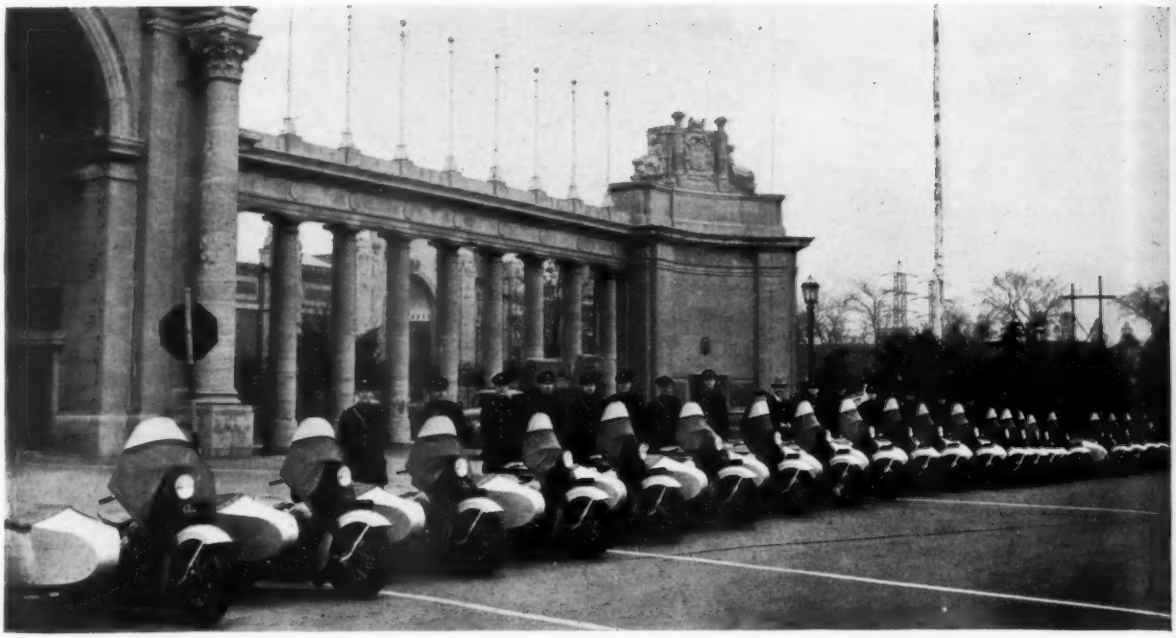
Name.....

Address.....

City..... State.....

Title or official capacity.....

UNITED STATES STEEL



In this photograph, Inspector C. Lytle (center), who is in charge of the Traffic Division, is shown with thirty new Harley-Davidson Police Motorcycles received by the Toronto Police Department in 1946, bringing its total to 51—*all Harley-Davidsons.*

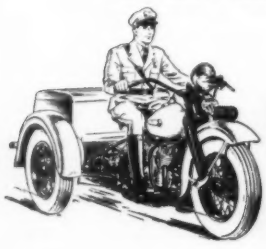
## Toronto, Canada Uses 51 Motorcycles

# ALL HARLEY-DAVIDSONS

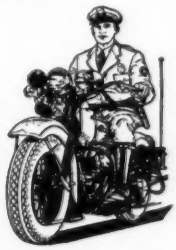
## To Effectively Cope with Increased Traffic Problems

INSPECTOR LYTLE and his Harley-Davidson equipped traffic squadron can well take pride in their city's exceptionally low annual rate of traffic deaths . . . and in maintaining their brilliant traffic record in 1947! Like Toronto, many other cities in the United States and Canada are accomplishing decreases in traffic fatalities in the face of upward trends in motor vehicle registrations and mileage. An ever-increasing number of police departments are making fine records in accident prevention with their present equipment — but all too often are hampered by not having *enough* motorcycle equipment. The use of *more* Harley-Davidson motorcycles, Servi-Cars and sidecars will enable you to make the most of your manpower and get best results from modern traffic control techniques. Many cities *have proved conclusively* that no other method can match this motorcycle combination for solving today's greatly increased traffic problems and *preventing* tragic accidents. Call in your Harley-Davidson dealer today — get complete information about Harley-Davidson Police Motorcycles, Servi-Cars and sidecars.

**HARLEY-DAVIDSON MOTOR COMPANY • Milwaukee 1, Wisconsin**



# HARLEY-DAVIDSON
## POLICE MOTORCYCLES

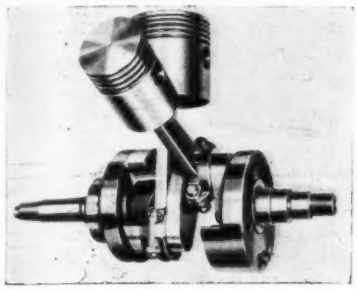


## New Crankshaft Eliminates Rocking, Vibration

A new type of crankshaft which eliminates rocking and vibration, according to its inventor, Paul H. Davey, has been announced by the Davey Compressor Co., Kent, Ohio.

Known as the Equi-Balanced Crankshaft, the new unit spreads compressor working strokes evenly over the 360 degrees of crankshaft rotation. In 60 and 105 c.f.m. V-type compressors, the new design employs a two-throw crankshaft, as illustrated. Throws are spaced at an angle which is the supplement of the V.

The primary advantage of the new mechanism is the combination of equally spaced and reciprocating forces which are balanced, and the elimination of rocking and vibration. Thus, the manufacturers state, the better features of both the "in line" and "V-type" units are obtained.



*The Davey Equi-Balanced crankshaft, showing two throws with pistons attached.*

## Portable Line-Marker

Requiring neither air-pressure hose nor electrical outlets, the Mark-Rite line marker is operated by hand and may be used either by itself or to supplement mobile machines.

The unit has self-cleaning valves, large wheels to facilitate operation, oversize filler cap to speed filling on the job, and takes only five minutes to set up. No straining of the paint or lacquer is necessary. The brush may be obtained in 2-, 3-, or 4-inch widths, and may be used interchangeably.

Mark-Rite is manufactured by the Universal Sales Co., 8680 Otis St., South Gate, Calif.

*This line marker may be used as an auxiliary unit or independently.*

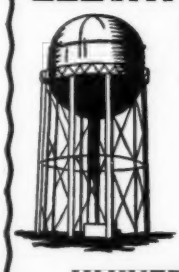
## Hazeltine Joins Galion

Former Vice-president and Sales Manager of the Buffalo-Springfield Roller Co., Springfield, Ohio, William J. Hazeltine has joined the Galion Iron Works & Mfg. Co., Galion, Ohio, as special representative of the Roller Division. His position will be that of coordinating and stimulating sales of rollers, which will soon go on an expanded production schedule.

## Bailey Meter Appoints New Agent

The Portilla Corp., P. O. Box 3334, San Juan 15, Puerto Rico, has been appointed by Bailey Meter Co., Cleveland, Ohio, as its agent in Puerto Rico, the Republic of Haiti, the Dominican Republic, and the Virgin Islands. Portilla will take over the sales, installation, and servicing formerly conducted by H. Clyde Gregory, Inc.


**ELEVATED WATER TANK PAINTING**



We are industrial painters specializing in Steel Elevated Water Tank Cleaning and Painting, endorsed by National and State authorities, factory and municipal engineers.

- Reasonable prices
- Full insurance
- Inspections and quotations free
- Write for our representative today
- No obligation.

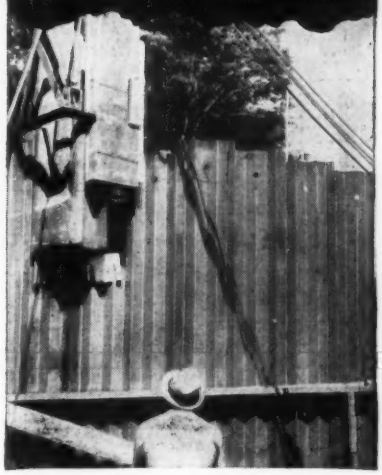
We paint Gas Holders, Warehouses, Smoke Stacks, Mills, Factories; and also repair Brick or Concrete Chimneys.

**UNIVERSAL CONSTRUCTION COMPANY**

1158 W. 34th St., Indianapolis 8, Ind. P. O. Box 1492, Birmingham, Ala.



**FOR SPEED MAKE IT STEEL SHEETING**



Sheeting jobs, whether permanent or temporary, are done quickly and economically with ARMCO Steel Sheeting. Check these advantages:

SAFE STRENGTH . . . ARMCO Sheeting is corrugated to assure ample strength with light weight. This makes for easy handling and quick installation.

EASY TO DRIVE . . . Light weight and small displacement area simplify driving. Sections butt together or are held securely in place by interlocking joints that assure the right alignment and practical water-tightness.

LOW COST . . . Besides economy of installation ARMCO Sheeting is low in cost. You buy the exact weight you need. Repeated use of the sheeting makes job costs surprisingly low.

ARMCO Sheeting is nestable and requires comparatively little space for shipment and storage. Write for prices and information on how ARMCO steel sheeting can better do your job. Armco Drainage & Metal Products, Inc., 2035 Curtis Street, Middletown, Ohio. Offices in Principal Cities.

ARMCO

**ARMCO STEEL SHEETING**

# Where - How Long ?

NO PARKING BUS STOP
ONE HOUR PARKING 7 AM TO 6 PM
PARKING DIAGONAL
ONE WAY DO NOT ENTER
15 MINUTE PARKING 7 AM TO 6 PM
DAYTIME ONLY
NO PARKING HERE TO CORNER

Whether he's "home folks" or "through traffic" the motorist likes good traffic signs. The sign serves best that tells quickly what he wants to know, be it where to PARK or where to DRIVE.

That's why markers from the complete Miro - Flex sign line are your best bet for traffic control. Plain embossed or reflectorized, with glass or lucite buttons. Write for your catalog TODAY. . . . . .

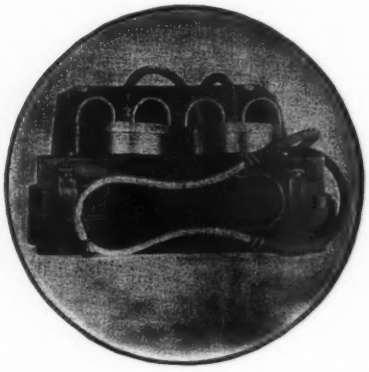
647

MANUFACTURED BY

## MIRO-FLEX COMPANY

1824 EAST SECOND STREET · WICHITA, KANSAS

## A "Bull's Eye" every time



## A/H LEAK LOCATOR

When hunting leaks, you need not be an expert marksman if you use the A/H Leak Locator. Just place it in contact with the earth, put on the ear-phones, and the A/H Locator will lead you to that underground leak in a jiffy. No hit-and-miss excavating, no unnecessary resurfacing of the street. Price complete with carrying case and strap: $75.00.

| pipe locators | dipping needles | pipe phones |
|---|---|---|
| $100.00 | $17.50 | $3.70 |

*Write for circular AC-6*

**ALLEN - HOWE ELECTRONICS CORP.**

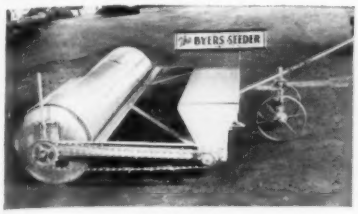
150 MAIN ST. PEABODY, MASS.

## HAND
## STORAGE BATTERIES
## FOR MUNICIPALITIES

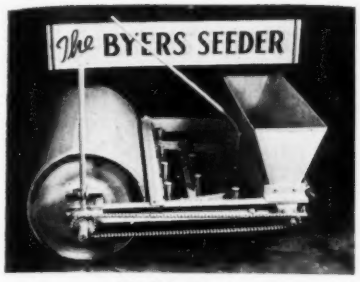
HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

## Seeder Rakes and Rolls Simultaneously




*Model No. 1*




*Model No. 2*

The Byers seeder sows seed, commercial fertilizer, agricultural limestone, or any granular material that can be broadcast on the surface while simultaneously raking and rolling.

The quantity of seed can be determined accurately for any given area without variable computation, as the hopper's location, just seven inches above the ground, prevents the seed from being blown away.

Two models are available: the Number 1, which is 8 feet wide and 6 feet long, is most applicable to large lawn areas. The Number 2, two feet wide and 3 feet long, is for use on small areas.

Additional information may be obtained from P. L. Byers, Clyde, Ohio.

## New Insecticide

A new insecticide reportedly ten times as effective as DDT against cockroaches and which may also be used effectively against ants, flies, mosquitoes has been announced by The Dow Chemical Co., Midland, Mich.

First reported by F. W. Fletcher, Dow entomologist, chlordane has been proven under test to destroy roaches faster than DDT, the manufacturer claims, and to retain its effectiveness several months after treatment of pest-infested areas.

The best method of applying the insecticide, Mr. Fletcher reports, is to direct a coarse spray into cracks, burrows, tunnels, wall spaces, or nests. The chemical is sold under the trade name of Dowklor.

Although it is most effective against cockroaches and the other pests named above, chlordane can also be used efficiently for most other types of insects.


**CAN CARRIERS**

TARCO "Street Sweepers' Friend" CAN CARRIERS are QUIET, EFFICIENT, SMOOTH RUNNING.

Rubber or steel tired wheels. Roller or plain bearings. Full swiveling castor wheels. Sturdy all welded frames. Perfectly balanced for easy handling. Nicely finished in red and black enamel.

*Write for free pamphlet.*

**TARCO "Shipping Drum" SPRAYER**
**Tar and Asphalt Pouring Pots and Buckets**

**Tarrant Manufacturing Co.**
**East Avenue,**
**Saratoga Spa, New York**



**BUFFALO METER**
***Simplicity***
**PRODUCES A PROFIT**

● $200 to $400 revenue is produced by a water meter in a twenty year period.

What are the costs? What is the profit?

Buffalo Meters both American and Niagara, provide high earnings at low cost because of their simple but sturdy construction. First cost is moderate, maintenance cost far below average. Here is part of the reason.

The gear train is cast from a hard, tough alloy of bronze, the gear teeth are machined, to provide rolling action, then coated with a hard shell of chromium to increase wear resistance. The weight of each gear is carried on a patented, dirt-proof, enclosed bearing. Other features such as the extra thick reinforced disc, patented frost bottom and engineered ease of assembly also save maintenance time . . . mean lower cost when repairs are finally needed.

Write for the "specifications" of American and Niagara Water Meters. Strategic design features are illustrated and described.

**AMERICAN** BRONZE CASE
**NIAGARA** GALV. IRON CASE
**WATER METERS**
**BUFFALO METER COMPANY**
**2902 MAIN STREET • BUFFALO 14, NEW YORK**

# KARPARK

**MEETS TOUGH CONDITIONS!**

When snow and merciless cold blanket the land, only steel-strong, enduring huskies can be relied on to pull the dog sleds through and travel the trackless wastes. When city streets are snow and ice covered, when thermometers sink to the lowest depths, the KARPARK never quits. Given rugged strength by sturdy construction, its precision-made mechanism faithfully maintains its dependable, accurate pace. When streets are baking hot, the story is the same. With this reliability, plus easy automatic operation it's plain to see why the KARPARK has proved to be so thoroughly satisfying in cities from extreme north to extreme south. A brief written request brings full information.

KARPARKS ARE MANUFACTURED BY THE HERSCHEDE HALL CLOCK CO.

THE WISE CHOICE

**KARPARK *Automatics***

KARPARK CORPORATION, CINCINNATI 6, OHIO

**BRASS BRAINS IN THESE FOUNTAINS**

We said last month "Public property must withstand rough usage."

Murdock Outdoor Drinking Fountains are pedal operated.

The inner works—the "brains"—are brass and the spring which operates the valve is phosphor bronze.

They last for years. Practically trouble-free. Repair costs figured in cents per installation per year.

**The Murdock Mfg. & Sup. Co.**
**Cincinnati 2, Ohio**

MURDOCK

OUTDOOR DRINKING FOUNTAIN

ANTI-FREEZING COMPRESSION HYDRANT

LARGE ANTI-FREEZING HYDRANTS 1½" TO 2" INCLUSIVE

SELF-CLOSING ANTI-FREEZING HYDRANT

"LOCK-LID" STREET WASHERS ¾ and 1" SIZES


## Changed Your Address?

If so, and your copies of THE AMERICAN CITY are not reaching you, please mail this form to us at 470 4th Avenue, New York 16, N. Y. so that your stencil may be corrected.

Changed from .....

..... (former address)

Changed to .....

.....

..... (new address)

Name ..... (please print)

Position .....

## Pennsalt Adds to Whitemarsh Staff

J. C. Russell and R. D. Trezise have been added to the staff of the Whitemarsh Research Laboratories, announced Dr. S. C. Ogburn, manager of research and development of the Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia 7, Pa.

Mr. Russell, formerly with the Florida Agricultural Experiment Station at Gainesville, Fla., has been appointed senior research entomologist. He will supervise field experimental work in agricultural chemicals in the southeast. Mr. Trezise, formerly chief chemist at the South Philadelphia Pennsalt plant, has been appointed research chemist at the Whitemarsh laboratories.

*William P. Drake*

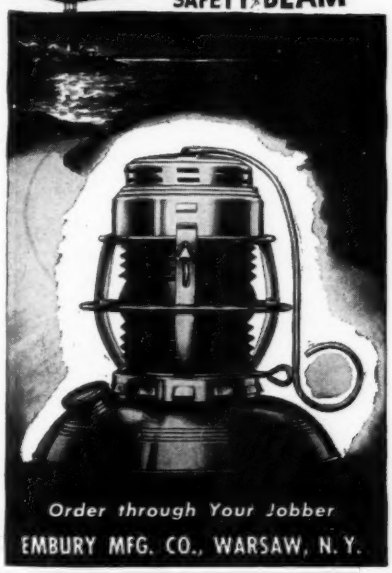
Mr. William P. Drake, manager of sales of the Special Chemicals Division, has been appointed assistant Vice - president to aid the Vice-president in planning for, and executing policies of, Pennsalt's expanding sales force and in organizing sales activities.


The Lighthouse of the Highway

EMBURY

Traffic Gard

The Warning Lantern with the SAFETY BEAM

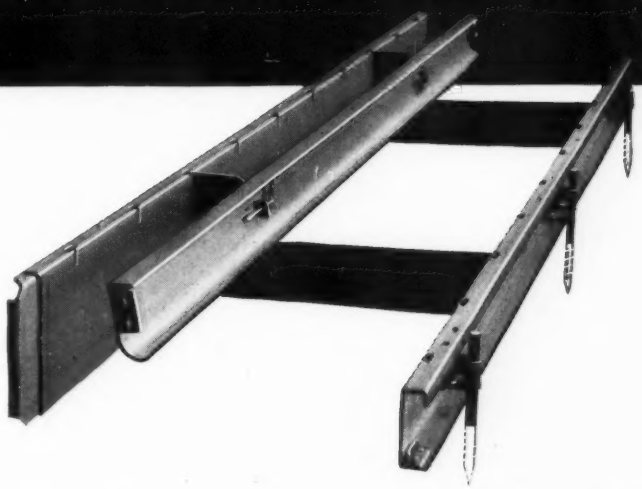


Order through Your Jobber

EMBURY MFG. CO., WARSAW, N. Y.

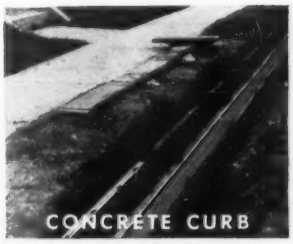


BLAW-KNOX STEEL FORMS for HIGH DOLLAR RETURN VALUE



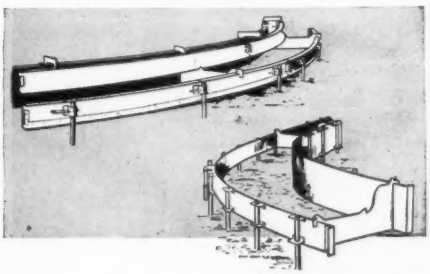
*Here's why—*

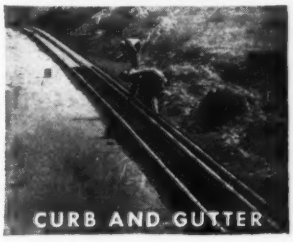
These steel forms are a *permanent investment*—always ready for action—to use again and again. They are easy to transport, set up and remove . . . Whether the job is city street, curb-and-gutter or sidewalk, it can be done quicker and cheaper, with standard Blaw-Knox forms. They eliminate expensive specially built wood forms as well as the hand-finishing necessary after wood forms are removed . . . If you are interested in doing a better paving job at less cost, write today for Catalog No. 1859.



CONCRETE CURB

SIDEWALKS





CURB AND GUTTER

BLAW-KNOX DIVISION

OF BLAW-KNOX COMPANY

2102 Farmers Bank Bldg., Pittsburgh 22, Pa. • Offices in Principal Cities

# EASY TO LAY . . .

## LASTS CENTURIES

McWANE PRECALKED CAST IRON PIPE is made with lead and redwood wedges in the bells at the foundry. There's no lost time on the job. All you do is "socket the spigot and calk." The tight joints safeguard against leakage and give centuries of service.

All sizes from 2" thru 12"

**McWANE CAST IRON PIPE CO.**
BIRMINGHAM 2, ALA.

**McWane PRECALKED Pipe**

## PROTECTING THE NATION'S RESERVOIRS!

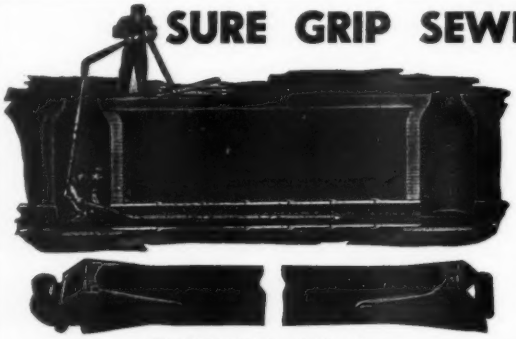
*Experts in metal fabrications since 1886*

**Stewart 3TH Non-Climbable Chain Link Wire Fence** assures the utmost in protection for reservoirs and all other public property. Stewart products for protective purposes also include: Wire Window Guards, Wire Mesh Partitions and Steel Folding Gates. When writing for information please mention products in which you are especially interested.

**THE STEWART IRON WORKS CO., INC.**
1421 Stewart Block Cincinnati 1, Ohio

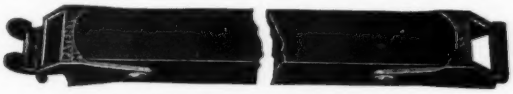
**Stewart IRON and WIRE FENCES**

## SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

*Write for catalog on complete line of sewer cleaning equipment.*

**EXPANDING SEWER MACHINE CO.**
NAPPANEE, IND.

## PROPER HOUSE NUMBERING

There is a right and a wrong way to plan your house numbering program. Premax Stamped and Embossed Metal Numbers provide the necessary legibility.

**Premax Products**
Division of Chisholm-Ryder Co., Inc. 3836 HIGHLAND AVE., NIAGARA FALLS, N.Y.

## FOR STOPPING LEAKS IN PIPE LINES...

Emergency Pipe Clamp—the universal repair clamp the world over, for nearly half a century! Easy to apply. Saves cost of new pipe—eliminates job of tearing out old and putting in new.

**M. B. SKINNER CO.**
SOUTH BEND 21, INDIANA

**SKINNER-SEAL EMERGENCY PIPE CLAMPS**

## International Harvester Appoints District Manager

B. M. Kaiser has been appointed southwest district manager of motor trucks of the International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill. Mr.. Kaiser is replacing J. T. Sullivan, who has been transferred to the eastern district in the same capacity.

Previous positions held by Mr. Kaiser have included the posts of branch manager at the West Haven and Baltimore offices.

## Smith-Blair Names Distributors

Smith-Blair, Inc., 535 Railroad Ave., South San Francisco, Calif., has recently appointed the following distributors for the eastern and central regions of the United States:

The Ellis & Ford Mfg. Co., 418 S. Woodward Ave., Birmingham, Mich.; to serve Michigan, Ohio, Indiana, Illinois, and Wisconsin.

The Davis Meter Repair Co., 418 South Madison, Thomasville, Ga.; Florida, Georgia, Alabama, and Mississippi.

Cities Supply Co., 204 E. Hampton, Sumpter, S. C.; North and South Carolina and Virginia.

Joseph G. Pollard Co., Inc., 142 Ashland Place, Brooklyn, N. Y.; New England states, New York, New Jersey, and Pennsylvania.


APCO-V-APCO PRIMERS

AUTOMATIC POWER OR TANK PRIMERS

AIR RELEASE VALVES

FOR

FILTER PIPE LINES
DISTRIBUTION LINES
AND OTHER USES
17 TYPES

VALVE AND PRIMER CORPORATION

30 W. Washington St.
CHICAGO 2, ILL.

This new HEIL COLECTO-PAK Municipal Refuse Disposal Body

Bucket unloads in less than a minute under fingertip control.

gives you

★ Low loading height
★ Double capacity
★ Complete enclosure
★ Easy maintenance

The all-enclosed, water-tight Heil Colecto-Pak is the answer to your search for a modern method of speeding-up, simplifying, and improving garbage collection and disposal.

This unit has a ¾-yard loading bucket at a 35-inch height making it extra easy to load. This "power-lifted" bucket deposits load and returns to starting position in less than a minute. At the same time the hydraulic-operated packer plate is compressing the material down toward the discharge end. It is possible to compress 20 yards of wrapped garbage into this 10-yard body.

Automatic, hydraulic-operated packer plate packs 20 yds. in a 10-yd. body.

With this unit your city has a clean, sanitary means of collecting garbage with none of the unsightly and unsanitary features imposed by "open body" collectors. Your city can feel proud of its advanced thinking in purchasing a Heil Colecto-Pak.

BH-114

Tapered body construction assures speedy discharge regardless of compression.

*Write for bulletins.*

ARMY NAVY

THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

# Out of some cold figures, came a story to warm America's heart

NOT LONG AGO, the Secretary of the United States Treasury studied a figure-covered sheet of paper.

The figures revealed a steady, powerful upswing in the sale of U. S. Savings Bonds, and an equally steady decrease in Bond Redemptions.

**But to the Secretary, they revealed a good deal more than that, and Mr. Snyder spoke his mind:**

"If you give them the facts," he said, "you can always depend on the common sense and long-range judgment of the American people.

"The last few months have given us heart-warming proof of that.

"After the Victory Loan, sales of U. S. Savings Bonds went down—redemptions went up. And that was only natural and human.

"It was natural and human—but it was also dangerous. For suppose this trend had continued. Suppose that, in this period of reconversion, some 80 million Americans had decided not only to stop saving, but to spend the $40 billion which they had *already* put aside in Series E, F & G Savings Bonds. The picture which *that* conjures up is not a pretty one!

"But the trend did NOT continue.

"Early last fall, the magazines of this country—nearly a thousand of them, acting together—started an advertising campaign on Bonds. This, added to the continuing support of other media and advertisers, gave the American people the facts . . . told them why it was important to buy and hold U. S. Savings Bonds.

"The figures on this sheet tell how the American people responded—and mighty good reading it makes.

"Once more, it has been clearly proved that when you give Americans the facts, you can then ask them for action—and *you'll get it!*"

### What do the figures show?

On Mr. Snyder's sheet were some very interesting figures.

They showed that sales of Savings Bonds went from $494 million in last September to $519 million in October and kept climbing steadily until, in January of this year, they reached a new postwar high: **In January, 1947, Americans put nearly a billion dollars in Savings Bonds. And that trend is continuing.**

In the same way, redemptions have been going just as steadily downward. Here, too, the trend continues.

Moreover, there has been, since the first of the year, an increase not only in the volume of Bonds bought through Payroll Savings, but in the number of buyers.

---

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